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ARCHAEOLOGICAL DATA RECOVERY AT 31Dh234, FALLS LAKE PROJECT, DURHAM COUNTY, NORTH CAROLINA

Contract No. DACW54-88-C-0018

Final Study

Prepared For

U. S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT
Wilmington, North Carolina

December 1988

Prepared By

CAROLINA ARCHAEOLOGICAL SERVICES
Columbia, South Carolina

Under the Supervision of

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ABSTRACT

Archaeological data recovery at 31Dh234 yielded information about prehistoric subsistence activities and site formation processes in piedmont North Carolina. The site's major cultural components are associated with the prehistoric Archaic and Woodland periods of Native American occupation. The major contributions of this study are (1) demonstration of cultural stratification at relatively shallow and moderately disturbed piedmont sites, and (2) evidence for the long-term continuity of "expedient" technologies in aboriginal subsistence systems.

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PREFACE

The archaeological research and site analysis discussed in this study were generated as a result of Federal data recovery procedures at 31Dh234 (Durham County, North Carolina), a National-Register eligible site. Project administration and funding were provided by the U. S. Army Corps of Engineers, Wilmington District under Contract No. DACW54-88-C-0018. Satisfaction of the contract included archaeological fieldwork, laboratory processing and identification, data analysis, computerized mapping, graphics production, and report preparation.

The purpose of the 31Dh234 archaeological study is to document and disseminate the comparative information and technical data derived from intensive investigation of the site. Major aspects of site analysis include a study of lithic raw materials, tool forms, and usage patterns (authored by Ruth Wetmore); and a study of ceramic and other vessel types and their distribution (authored by Christopher Judge). The major contributions of this study are (1) demonstration of cultural stratification at a relatively shallow and moderately disturbed piedmont site, and (2) evidence for the long-term continuity of "expedient" technologies in aboriginal subsistence systems during the Archaic and Woodland periods.

Lesley M. Drucker
Principal Investigator

ACKNOWLEDGMENTS

As is generally the case for archaeological data recovery projects, this study is the result of collaboration by a number of individuals. Overall design and coordination of project research, administration and planning, as well as technical review and editing were provided by Dr. Lesley Drucker (principal investigator). The field crew for intensive surface collection at 31Dh234 consisted of Mr. Christopher Judge (field director), Mr. Edward Rogers, Mr. Alex West, and Ms. Ruth Wetmore. The excavation crew included Mr. Christopher Judge (field director), Mr. Ron Anthony, Ms. Jane Erskine, Mr. Hugh Matternes, Mr. Charles Rinehart, Mr. Edward Rogers, and Mr. Alex West. Laboratory processing and sorting of artifacts was accomplished by Mr. Ed Bolen, Mr. Brett Halaby, Mr. Michael Lindeman, Mr. Edward Rogers, and Mr. Jeff Sacks, under the supervision of Ms. Susan Jackson (project coordinator) and Mr. Chris Judge.

Mapped distributions of surface artifact frequencies were computer-generated by Ms. Kathryn Joseph, using GIMMS programming available at the University of South Carolina; Ms. Susan Jackson and Ms. Ruth Wetmore prepared the remaining statistical arrays used in the report. Professional drafting and preparation of black/white photographs and artifact illustrations were ably provided by Mr. Gene Speer, Mr. Gordon Brown, and Mr. Mitchell Wyatt.

Discussion and various input concerning site background, artifact identification, statistical analysis, and radiocarbon dating for Yadkin ceramics were generously provided by a number of professional colleagues, including Mr. Stephen Claggett and Ms. Dolores Hall (N. C. Office of State Archaeology); Dr. Joffre Coe and Dr. Trawick Ward (UNC-Chapel Hill); Dr. Albert C. Goodyear, Mr. Stanley South, Mr. Tommy Charles, and Mr. Keith Derting (S. C. Institute of Archaeology and Anthropology); Mr. Dennis Blanton (Southern Illinois University); and Dr. Stanton Green (University of South Carolina). Our research in Chapel Hill was made even more pleasurable as a result of the gracious home hospitality and good company of Dr. and Mrs. Coe. Peer review of the site lithics analysis draft was promptly and thoughtfully provided by Ms. V. Ann Tippitt (UNC-Chapel Hill). The assistance of these individuals is most gratefully acknowledged by the authors, who retain full responsibility for any errors in interpretation which may appear in this study.

The archaeological staff of Carolina Archaeological Services also gratefully acknowledges the administrative assistance of the COE-Wilmington procurement and technical staff, particularly Mr. Richard Lewis and Ms. Christina Correale (Environmental Resources Branch), Ms. Hilda Ayers (Contracting Branch), and Mr. Ken Morris (Accounting Branch).

1.0 PROJECT BACKGROUND

1.1 Project Setting

Located in the piedmont of north-central North Carolina (Fig. 1), Falls Lake was formed by the impoundment of the Neuse River and its tributaries, the lower basins of the Eno, Little, and Flat Rivers. Falls Lake is located north of Raleigh and northeast of Durham. The Blue Ridge Mountains are situated ca. 170 miles to the west, while the coastal plain is approximately 50 miles to the east. Archaeological site 31Dh234 is located in Durham County, in an area known as the Triassic Basin, a lowland region of sedimentary rocks and gradually undulating surfaces with U-shaped stream valleys and wide floodplains (Hargrove et al. n.d.: 2.2).

Site 31Dh234 was determined eligible for the National Register of Historic Places (36 CFR 60.4, Criteria [a] and [d]) through consensus of Wilmington District, Corps of Engineers (COE-W) and N. C. Department of Archives and History. The site's significance was demonstrated as a result of survey and testing conducted by Commonwealth Associates, Inc. in 1978 (Claggett et al. 1978) and Archaeological Research Consultants in 1983 (Hargrove et al. n.d.). Although previously disturbed by forest clearing and cultivation, 31Dh234 appeared to contain stratified deposits, primarily consisting of Middle to Late Woodland occupation overlying Early to Middle Archaic occupation. No organic materials suitable for paleoenvironmental reconstruction or radiocarbon dating were recovered during the 1978 and 1983 survey and testing efforts. Site refuse was composed of aboriginal lithic tools and debitage as well as ceramic sherds.

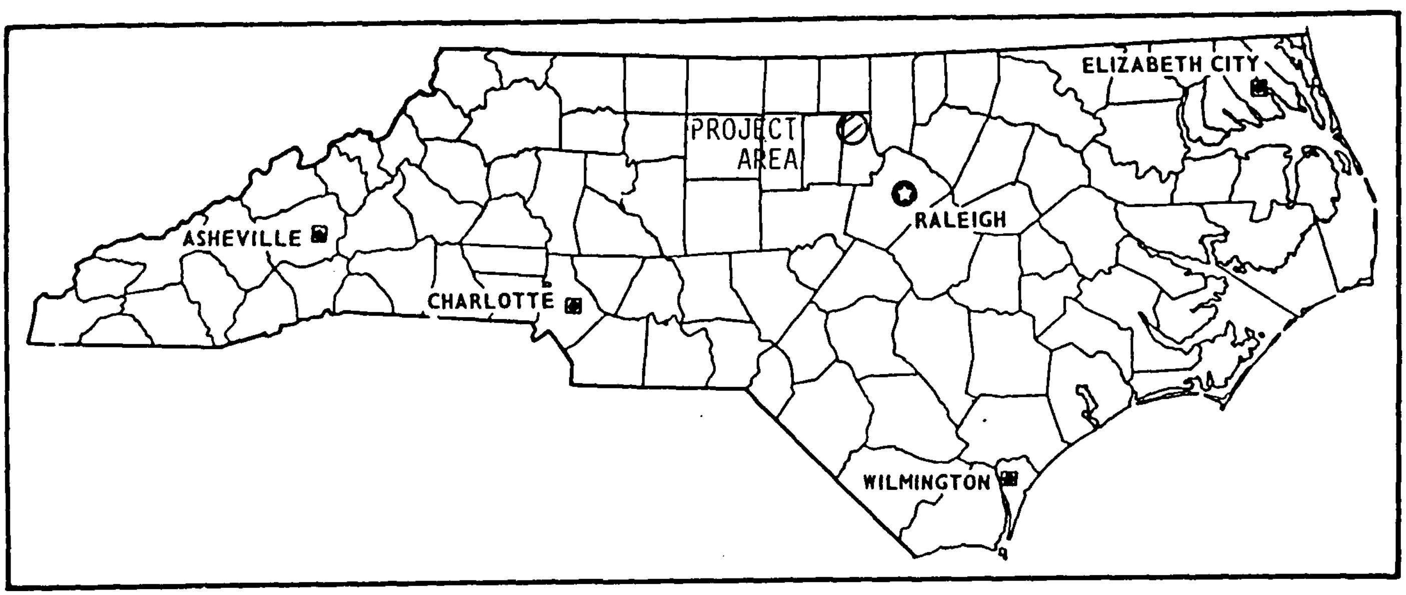


Figure 1. Project location map, Falls Lake area, Durham County, North Carolina.

1.2 Scope of Work and Legal Basis

Site 31Dh234 is located within a subimpoundment borrow area of the Falls Lake Project. In accordance with a Memorandum of Agreement executed among Wilmington District, Army Corps of Engineers, the Advisory Council on Historic Preservation (ACHP), and the North Carolina Office of State Archaeology (NC-OSA), archaeological data recovery was carried out at 31Dh234 to mitigate the adverse effects of Government activities associated with soil borrow activities, as well as those of erosion and vandalism. Archaeological data recovery was conducted under the authority of the National Historic Preservation Act as amended (P.L. 93-291, P.L. 96-515), the Archaeological and Historic Preservation Act (P.L. 93-291), and the Reservoir Salvage Act (P.L. 86-523). All work associated with the data recovery was performed under contract with COE-W by Carolina Archaeological Services (CAS), according to federally-defined performance standards (36 CFR 66) (Appendices A and B).

2.0 ARCHAEOLOGICAL CONTEXT OF THE NORTH CAROLINA PIEDMONT

2.1 Modern Environment

Topography and Hydrology - Durham County is situated in the North Carolina piedmont, which is characterized by an uplifted, dissected peneplain. The rolling, hilly relief of the study area promotes moderate to rapid drainage, except at nearly level inter-stream divides and on floodplains (Kirby 1976:71).

The study area is situated within the Triassic Basin, which is characterized by mature, U-shaped valleys and wide floodplains (Kirby 1976; Hargrove et al. n.d.). The Flat River is the most prominent geographical feature in the 31Dh234 study area, and is one of the major tributaries of the Neuse River. Along with other tributary streams, such as Lick Creek, Little Lick Creek, and Knap of Reeds Creek, Flat River tends "to meander across the wide, flat, sedimentary floodplains" (Hargrove et al. n.d.:2.5).

Geology and Soils - Site 31Dh234 lies west of the Jonesboro Fault, where the Sanford Formation of the Triassic Basin is composed primarily of claystone, siltstone, and sandstone. This area of sedimentary bedrock occurs in a northeast-trending belt approximately 12 miles wide. Diabase dikes and other pockets of crystalline stone occur throughout the area. Quartz cobbles are also present in streams (Hargrove et al. n.d.:2.3).

Soils in the study area are derived from alluvial and sedimentary materials. The dominant soil in the vicinity of 31Dh234 is White Store sandy loam (10% - 25% slope), which formed under forest vegetation from weathered Triassic mudstone detritus. These soils are low in natural fertility and organic content, with a deep root zone and very slow permeability. The White Store series consists of moderately well drained, gently sloping to sloping upland soils (Kirby 1976:26).

White Store series soils range from medium acid to very strongly acidic. Typical profiles exhibit:

Ap - 0 - 6 inches (0 - 15 cm), brown (10YR 5/3) sandy loam; weak, medium, granular structure; very friable; common fine roots; few quartz pebbles; medium acid; abrupt, wavy boundary.

B1t - 6 - 10 inches (15 - 25 cm), strong-brown (7.5YR 5/6) clay loam; weak, medium, subangular blocky structure; firm, sticky, plastic; few fine roots; few discontinuous clay films; few quartz pebbles; strongly acid; clear wavy boundary.

B21t - 10 - 22 inches (25 - 56 cm), yellowish-red (5YR 5/6) clay; common, medium, distinct, reddish-brown (5YR 4/4) and yellowish-brown (10YR 5/6) mottles; prismatic structure parting to moderate, fine and medium, blocky structure; very firm, very sticky, very plastic; few fine roots, common continuous clay films on faces of peds; very strongly acid; gradual, wavy boundary.

B22t - 22 - 28 inches (56 - 71 cm), yellowish-red (5YR 4/6) clay; many, medium, distinct mottles and streaks of reddish brown (2.5YR 4/4) and gray (10YR 5/1); weak, medium, blocky structure; very firm, sticky, plastic; few discontinuous clay films on faces of peds; few small flakes of mica; common soft, shale fragments; very strongly acid; gradual, wavy boundary.

Climate - The climate of Durham County can be characterized as continental, since it is moderated by warm air currents from the Atlantic Ocean. Rainfall is well-distributed throughout the year and averages 43 inches annually. The long summer is moderately hot, with highs averaging 81 - 89 degrees Fahrenheit; winters are usually mild, with low temperatures averaging 31 - 37 degrees Fahrenheit. Snowfall is generally light (10 inches per year) and the average growing season is approximately 200 days (Kirby 1976:71-73).

Flora and Fauna - Durham County is located within the "post oak-turkey oak-hickory" community of the southern piedmont as defined by Shelford (1963:57). Various microenvironments are created by different local topographical conditions, such as elevation, slope face, and soil type (Oosting 1942; Shelford 1963).

Prior to modern land clearing activities, the study area supported a mixed oak-pine climax forest. Today, the uplands support secondary forests consisting primarily of Virginia pine, shortleaf pine, and mixed hardwoods, including oak, poplar, hickory, and eastern red cedar. Bottomlands along major creeks contain stands of water oak, willow oak, river birch, sycamore, sweetgum, blackgum, and pine. Many wild herbaceous plants are indigenous to the Falls Lake vicinity. These include goldenrod, beggar weed, partridge pea, pokeweed, fescue, smartweed, wild millet, rushes, sedges, reeds, wild rice, cutgrass, cordgrass, and cattail. An extended discussion of the natural resources of the Falls Lake project area is presented in Hargrove et al. (n.d. 2.1 - 2.16).

2.2 Paleoenvironmental Reconstruction

Substantial climatic and vegetational changes occurred in the southeastern Atlantic region between the late Pleistocene -- when humans first entered the piedmont -- and the Present. Paleoclimatic reconstructions indicate that deglaciation began approximately 14,000 years B.P., when a comparatively rapid warming trend ameliorated glacial climates. This shift from a cool, boreal setting to a warmer, temperate setting is recorded geolc ically as a succession of forest types. In the North Carolina piedmo.t, the following climatic/vegetational sequence has been established (Claggett and Cable 1982:13):

(1) pre-13,000 years B.P.: Pine-spruce parkland or forest,
(2) ca. 13,000-9,500 years B.P.: Northern hardwoods,
(3) ca. 9,500-7,000 years B.P.: Oak-hickory forest,
(4) ca. 7,000 years B.P. - Present: Oak-pine forest.

Prehistoric inhabitants of the North Carolina piedmont developed subsistence patterns adapted to the great natural diversity of animal and plant life. John Lawson, who provides the most complete early account of

Indian life in the North Carolina piedmont and coastal plain, observed 27 mammal species of economic interest to human populations (Lefler 1967:120). While bear, buffalo, elk, wolf, and panther are no longer common in the piedmont, white-tailed deer, beaver, raccoon, squirrel, and rabbit continue to be abundant. Also present are muskrat, opossum, red fox and gray fox (Kirby 1976:42). Between the Haw River and Occaneechi Town, located near present-day Hillsboro, Lawson observed that "[Indian] Cabins were hung with a good sort of Tapestry, as fat Bear, and barbakued or dried Venison; no Indians having greater plenty of Provisions than these" (Lefler 1967:61). Birds in this area of the piedmont included turkey; quail; mourning dove; woodpecker; redwing blackbird; migratory waterfowl such as mallards, wood duck and black duck; and the now-extinct passenger pigeon. Streams and marshes were rich sources of fish, turtles, frogs, snakes, and fresh-water mussels.

Archaeological as well as ethnohistorical information on Native American subsistence patterns indicates that Indian populations enjoyed a varied though selective diet, no doubt correlated to seasonal patterns of natural accessibility and/or abundance. Analysis of faunal and botanical materials from protohistoric and historic Indian sites (Holm 1987; Gremillion 1987) verifies that aboriginals during the fifteenth and sixteenth centuries continued to depend heavily on game and wild plants, in addition to domesticates such as corn, beans, squash, and fruits.

The Fredricks site (31Or231), site of old Occaneechi Town, has provided evidence that the most important food animals during the Contact period were white-tailed deer (75.8% of available meat yields per individual species), bear (16.3%), turkey (4.6%), and racoon (1.2%) (Dickens et al. 1986; Ward and Davis 1988). An interesting corroboration of Lawson's reporting that bear paws were considered the most edible portion of bear carcasses (Lefler 1967:122) was the finding that 68.5% of all bear bone at 31Or231 was burned, with the majority consisting of foot bones (Holm 1988:90). Catfish appears to have been the most important aquatic food resource at 31Or231 (Holm 1988:92). Vegetal foods at 31Or231 were most heavily represented by maize, common beans, and pepo squash; other staples included hickory and acorn nuts (Gremillion 1988:112). Contact with European traders may be reflected by the use of two Old World domesticates, peach and watermelon, both of which have also been recovered from 31Or231 (Gremillion 1988:110).

Similarly, at three protohistoric Cherokee sites, Runquist (1979) discovered that deer constituted 80%-95% of the meat yields from detectable archaeological remains, followed in order of significance by turkey, raccoon, and opossum. Smaller species, such as squirrel and rabbit, were represented by large numbers of individuals (Runquist 1979:265-267).

A fairly sizeable selection of the herbaceous and woody plants found in the Neuse River drainage are known to have been utilized by prehistoric and historic aboriginal groups for tools, shelter, transportation, smoking substances, food, and medicine. Ash was commonly used for the manufacture of bows (Hudson 1976:273), because it is strong and elastic. Rushes, used today for seat covers and mat making, probably served similar purposes in prehistoric times. Cane had many uses in the prehistoric Southeast. Its outer covering was used to make baskets and

mats (Mason 1904; Hudson 1976:384). Cane was also a principal source of arrow shafts and blowguns, which were utilized by boys and young men to kill birds and small game (Hudson 1976:273; Speck 1938). Cane was also used by Indians to extract teeth; John Lawson observed that it was far less painful than traditional European methods (Hudson 1976:348; Lefler 1967:226-230). A musical instrument, called a flageolet, was a simple wind instrument fashioned from a length of cane (Hudson 1976:402); William Bartram described its sound as "hideous melancholy discord" (Harper 1958).

Spice bush, which occurred in alluvial forest environmemts of the Neuse drainage, was used as a tea as well as for medicinal purposes. A liquid, known as "kapapaska" to the Creeks and made from boiling its branches, was drunk to purify the blood (Hudson 1976:341). Red cedar, known as "atcina" to the Creeks, was also boiled and ingested as a spring tonic for aches and pains, and was burned as an incense (Hudson 1976:341). Goldenrod flowers were smoked for their fragrance (Hudson 1976:54). The tender end of a grapevine was used to cure "deer disease" (Hudson 1976:342). Slippery elm bark was prescribed by the Cherokee to pregnant women to make deliveries easier (Hudson 1976:342). Willow oak bark contains Salicin, which today is produced as an aspirin ingredient. Willow oak was used by the Creeks to make "miko hoyanidja," the most powerful of Creek medicines (Hudson 1976:349).

Wild rice and wild millet both produce edible grains. Gooseberries and grapes -- which were both available in the North Carolina piedmont between August and October -- and blackberries and persimmons were also gathered for food (Gremillion 1987:267). The most important of these fruits was the persimmon; its bitter, astringent qualities indicate that it was collected during late fall and early winter, when it developed a "date-like" flavor (Hudson 1976:285-286).

Selective use of a variety of plant foods was also dependent on the concurrent availability of preferred animal food resources during the protohistoric and historic aboriginal periods. Persimmon, acorns, and hickory nuts reached their maximum availability in the upland environments of the Falls Lake study area during the same months that white-tailed deer, wild turkey, and black bear reached their maximum weight by feeding on these mast foods (Hudson 1976:275). Indirectly, therefore, it would seem likely that short-term prehistoric campsites in these environments, like 31Dh234, will reflect mostly fall to winter occupation associated with procurement of both plant and animal food and oil resources.

Freshwater fish were also an important item in the diet of interior prehistoric populations of the southeastern United States. Catfish, sunfish, and gar, which occur in stream environments near 31Dh234, have been previously identified in archaeological contexts at protohistoric and historic aboriginal sites in the North Carolina piedmont (Wall and Fredricks sites - Holm 1987:241, 1988:91-93). Catfish, in particular, was probably the most important aquatic food species for inland aboriginal populations, due to its high caloric content (Hudson 1976:282).

2.3 Aboriginal Prehistory (10,000 B.C. - A.D. 1500)

The main prehistoric periods recognized in the cultural sequence of piedmont North Carolina are Paleo-Indian (ca. 10,000-8,000 B.C.), Archaic (8,000-500 B.C.), and Woodland (500 B.C.-A.D. 1500), followed by the Protohistoric and Historic periods. The Archaic and Woodland periods can be subdivided into a series of sub-periods (Early, Middle and Late) and cultural phases, each of which is typically identified by one or more diagnostic projectile point and/or ceramic types (Table 1).

TABLE 1

Cultural Sequence for the North Carolina Piedmont

Est. Range	Period	Proj. Pt. Type	Ceramic Series
AD 1600-1700	HISTORIC	Sm. Triangular	New Hope
		Randolph	Gaston
AD 1500-1600	PROTOHISTORIC	Sm. Triangular	Hillsboro
AD 1200-1500	LATE WOODLAND	Sm. Triangular	Dan River
AD 1000-1200		Sm. Triangular	Uwharrie
AD 500-1000	MIDDLE WOODLAND	Yadkin	Yadkin
500 BC-500 AD	EARLY WOODLAND	Badin	Badin
ca. 500 BC		Gypsy	-
2000-500 BC	LATE ARCHAIC	Savannah River	-
4000-2000 BC	MIDDLE ARCHAIC	Halifax	-
5500-4000 BC		Guilford	-
5000-4000 BC		Morrow Mountain	-
6000-5500 BC		Stanly	-
7000-6000 BC	EARLY ARCHAIC	Bifurcate	-
7500-7000 BC		Kirk	-
8000-7500 BC		Palmer	-
8500-8000 B.C.	PALEOINDIAN	Clovis	-
10,000-8000 B.C.		Hardaway	-
		Dalton	-

The basic chronological sequence for piedmont North Carolina was established by Coe (1952, 1964) and has been refined further by the work of Broyles (1971), Claggett and Cable (1982), Woodall (1984), Dickens et al. (1987), Oliver (1981, 1985), Ward (1983), and Chapman (1985).

Paleo-Indian Period (10,000-8,000 B.C.)

The earliest known cultural remains in piedmont North Carolina are those of the Paleo-Indians, who were present at least 12,000 years ago. Climatic conditions were much colder than today, since the Paleo-Indian cultural period coincided with the end of the Pleistocene geological period. Paleo-Indians are generally believed to have been mobile hunting and gathering bands. In western North America, their prey included large herd animals of the late Ice Age, such as mammoth and mastodon (Mason 1962).

Sites of this time period are only infrequently found in the eastern United States. Caribou and white-tailed deer seem to have been the most important food sources, supplemented by a variety of small game and wild plant foods (Steponaitis 1986:367-370). A later Paleo-Indian, or transitional Hardaway-Dalton cultural phase, appears to be associated with a logistically based hunting/gathering subsistence strategy, and is indicated by the predominance of large, thin spear-points; steeply beveled, hafted endscrapers; and other bifaces in the aboriginal toolkit (Coe 1964; Claggett and Cable 1982; Daniel 1986). A preference for fine-grained, cryptocrystalline materials for stone tool manufacture is also characteristic of this period (Goodyear 1979).

In North Carolina, evidence of Paleo-Indian occupation is most often indicated by surface finds of the typically lanceolate, generally fluted, Clovis-like spear points which are diagnostic of this period (Perkinson 1971, 1973). The Hardaway phase, thought by some researchers to be contemporaneous with the Paleo-Indian period in the Carolinas (Coe 1964; Ward 1983), and by others to be an Early Archaic manifestation (Keel 1976; Dickens 1976; Woodall 1984), has been documented by excavated data from the North Carolina piedmont (Coe 1964; Claggett and Cable 1982; Daniel 1986). This phase is only marginally represented in plowzone contexts at 31Dh234.

Archaic Period (8,000-500 B.C.)

The Archaic period is traditionally viewed as a time of adaptation to modern Holocene environments and increasingly specialized use of woodland resources (Caldwell 1958). Early Archaic tool kits resemble those of the earlier Paleo-Indian period in their emphasis on hafted bifaces, steeply retouched unifaces, and other tools suggestive of a hunting and gathering economy. A series of notched, stemmed, and bifurcate base projectile points is diagnostic of these early Native American toolkits (Coe 1964). In the North Carolina piedmont, Early Archaic tool types include Palmer (8,000-7,500 B.C.) and Kirk (7,500-7,000 B.C.), as well as components of the "bifurcate tradition," such as St. Albans (6,900-6,500 B.C.), LeCroy (6,500-6,000 B.C.), and Kanawha (6,500-6,000 B.C.).

Early Archaic sites in the North Carolina piedmont frequently occur along ridge tops and ridge toes (Coe 1964; Hargrove et al. n.d.). Stone-lined hearths, which were prepared by users of Kirk points, were constructed in shallow pits. This is in contrast to hearths prepared on the ground surface by earlier Palmer populations, suggesting increased permanence of campsite establishment through time (Coe 1964). Previous

survey in the Falls Lake project area resulted in the identification of 148 Early Archaic sites.

Middle Archaic components are frequently recorded in the Falls Lake project area; 234 sites have been recorded by previous surveys. Most of the Archaic materials recovered from 31Dh234 are associated with Middle Archaic occupation, and appear to reflect base camp activities associated with localized resource procurement. Diagnostic projectile points associated with Middle Archaic occupation of the North Carolina piedmont include Stanly, Morrow Mountain, Guilford, and Halifax types.

Middle Archaic sites occur in a wide range of environmental settings, although, as in earlier periods, there is a marked preference for ridge tops and ridge toes (Hargrove et al. n.d.). This distribution suggests intensive exploitation of diverse resources (Caldwell 1958). Diagnostic hafted bifaces associated with this period include Stanly (6,000-5,500 B.C.), Morrow Mountain (5,500-5,000 B.C.), Guilford (5,000-4,000 B.C.), and Halifax (ca. 3,500 B.C.) hafted bifaces.

Although the lithic traditions of the Middle Archaic period are relatively well known, these occupations are presently poorly documented in the archaeological literature of the southeastern United States (Coe 1964). In the Carolina and Georgia piedmont, lithic scatters which occur on deflated ridge tops are frequently interpreted as Middle Archaic campsites which were seasonally occupied (House and Wogaman 1978; Dickens 1964). Short-term and long-term occupation of interriverine zones are believed by several researchers to reflect seasonal exploitation of specific biotic resources, such as white-tailed deer, nuts, and acorns (House and Wogaman 1978).

Lithic technologies appear to have shifted at this time from an emphasis on curated, cryptocrystalline bifacial tools to the use of expediently manufactured and used flake tools made from local lithic materials (Blanton and Sassaman n.d.; Claggett and Cable 1982; Goodyear 1979). To the earlier tool assemblages were added chipped stone axes, grinding stones to process plant foods, ground stone atlatl (spear thrower) weights, and gorgets (Coe 1964).

The Late Archaic period, particularly the Savannah River phase (2,500 - 500 B.C.), is marked by an increase in site size and an apparent shift to partially sedentary settlements (Phelps 1964). In addition to the characteristically large, broad-stemmed Savannah River, Otarre, and Gypsy projectile points, steatite bowls, perforated steatite disks, and grooved stone axes are diagnostic of Late Archaic occupation (Coe 1964). Late Archaic components in the Falls Lake project are nearly as numerous as Middle Archaic components; 227 Late Archaic sites have been previously recorded.

<u>Woodland Period (ca. 500 B.C. - A.D. 1500)</u>

Subsistence during the Woodland period combined the generalized hunting and gathering strategies of the Archaic period with the cultivation of domesticated species. Although domesticated corn was used during the Middle Woodland period, it did not become an important crop until the late Middle Woodland period in Tennessee (Chapman and Shea

1981) and the Late Woodland period in other areas of the southeastern United States, probably including the Carolinas (Yarnell and Black 1985:102-104). The Woodland settlement pattern included seasonal campsites of varying sizes; by the Late Woodland and Protohistoric periods, some villages were occupied year-round. As cultivated crops became more focal in the Native American diet, villages and fields became more clustered near fertile bottomland soils.

In the Falls Lake project, Hargrove et al. (n.d.:8.34 - 8.40) have demonstrated a marked difference between environmental distributions for Archaic and Woodland populations. Whereas Woodland period sites are still frequently found on ridge landforms, they are also frequently found in floodplain settings, and are therefore generally more closely associated with permanent water sources than Archaic period sites appear to be.

Early Woodland (Badin phase, 500 B.C. - A.D. 500) assemblages are identified by large, crudely made, triangular projectile points and thick, well-made ceramics. Badin pottery is tempered with fine sand, and generally has a cord-marked or fabric-impressed surface finish (Coe 1964:27-29). Other items associated with Badin occupations are bar gorgets, fishing net weights, hammerstones, pitted cobbles, bone awls, and thick-walled tubular clay pipes (Coe 1964). Previous survey of the Falls Lake project has identified 59 Early Woodland components.

The Middle Woodland period is represented in the central North Carolina piedmont by the Yadkin phase (A.D. 500 - 1000). Yadkin projectile points are triangular bifaces with concave bases, and are thin and well made (Coe 1964:47). Like the preceding Badin ceramics, Yadkin pottery has the same conoidal form, along with cord-marked and fabric-impressed surfaces; however, the clay is tempered with large amounts of crushed quartz instead of sand (Coe 1964:30-32). Cigar-shaped clay pipes and zoomorphic or simple platform stone pipes were also made during this phase.

The Middle Woodland period has not been well documented in the Falls Lake project; only 13 components have been previously recorded. Although probable Middle Woodland mound sites are reported to have existed during the late nineteenth century in the Neuse River basin (Hargrove et al. n.d.:3.6), none have been scientifically documented. Hargrove et al. (n.d.:3.6) suggest that the scarcity of these sites in the piedmont indicates that most Woodland period occupations in this portion of the piedmont relied on hunting and gathering subsistence strategies, rather than intensive food production associated with sedentary settlements. This inference is based on the distribution of ephemeral (limited-activity) campsites in far greater numbers than village sites in this region.

A total of 39 Late Woodland components have been previously identified in the Falls Lake project.

Villages of the Late Woodland period (A.D. 1000 - 1500) typically consisted of small circular houses located along major rivers (Coe 1952:307; Ward 1983). Although the cultivation of corn, beans, and squash was well-established in the North Carolina piedmont by A.D. 1200,

hunting continued to be a primary subsistence activity (Woodall 1984; Dickens et al. 1987). Late Woodland occupation by Native Americans in piedmont North Carolina is characterized by the Uwharrie (A.D. 1000-1200) and Dan River (A.D. 1200 - 1500) ceramic series (Gardner 1980). The majority of these vessels have net-impressed surfaces and were scraped on the interior. Crushed rock and sand, which were used for temper, tended to become finer-grained through time (Coe and Lewis 1952; Gardner 1980). Small triangular projectile points predominated during the Late Woodland period; small, stemmed and pentagonal projectile points also proliferated.

2.4 Protohistoric and Historic Aboriginal Period (A.D. 1500-1700)

While some villages of the southern North Carolina piedmont may have had contact with mid-sixteenth century Spanish expeditions (Hudson et al. 1984; DePratter et al. 1983), the inhabitants of the northern piedmont were not visited by European travelers until a century later (Cumming 1958). Even before this time, it is likely that disruptions caused by European diseases and inter-population shifts to the east and south had some effect on native cultures of the piedmont (O'Donnell 1982).

The Protohistoric period, before Native American groups came into direct contact with Europeans, is characterized by regional diversity in ceramic styles (Wilson 1983a). In the North Carolina piedmont, Protohistoric ceramics are typically assigned to the Hillsboro series, which contains of crushed feldspar temper, as well as simple stamped, check stamped, or plain surface finishes (McManus and Long 1986:20). Other cultural materials continued to resemble those of precedent periods, including small triangular projectile points, flaked stone scrapers, ground celts, bone and antler tools, mussel shell scrapers, and marine shell gorgets and beads. Tubular pipes were made of clay and stone.

By the mid-seventeenth century, piedmont Indians were in regular contact with European traders (Cumming 1958; Lefler 1967; Alvord and Bidgood 1912; Lewis 1951). The route along which deerskins were exchanged for manufactured European goods was known during the Historic period as the Trading Path to the Catawba or Occaneechi Trail (Rights 1931; Cross 1980). This famous trail covered over 500 miles, extending from the Roanoke River in tidewater Virginia to Augusta on the Savannah River. One branch of the trail led west to Statesville, while the main trail turned southward to Catawba country. Where the Trading Path crossed the Yadkin River near present-day Charlotte, another branch led west to the Cherokee towns, and the main trail continued southward to the Savannah River (Hargrove 1986).

A considerable number of Native Americans occupied the North Carolina piedmont during Protohistoric and Historic times. Lawson found the Sissipahaw (Saxapahaw) Indians living along Haw River in small, dispersed settlements. The neighboring Saponi and Keyauwee occupied lands to the southwest along the Yadkin River drainage (Lefler 1967). The Sara (Cheraw) lived to the north along the Dan River (Byrd 1866).

During the 30-year interval between the visits of Lederer and Lawson to this region, the piedmont tribes declined dramatically. The Shakori and Eno had combined into one village on the Eno River by 1700; and

shortly after Lawson visited their village in 1701, the Sissipahaw moved eastward to live with the Tuscarora on the Neuse River (Lefler 1967). The last contemporary reference to the Sissipahaw in 1716 places them with the Catawba Indians (Wilson 1983b:195).

2.5 Euro-American and Afro-American Settlement

White settlers began arriving in the North Carolina piedmont during the 1720s. "Old" Orange County, which was part of Granville District, reflected permanent settlement by Euro-Americans and Afro-Americans by the 1740s (Kirby 1976; Anderson 1985). Many of these settlers were of Scottish-Irish and English descent, and migrated from southern Virginia and more northern colonies, as well as from eastern North Carolina.

The rich bottomlands along Neuse River and its tributaries continued to attract settlers, and the rolling terrain along streams provided dam sites for gristmills and sawmills needed by the farmers. Within the Falls Lake project area, early land grants attest to mid-eighteenth century settlement (Markham 1973; Anderson 1985). According to Anderson (1985:1), land use included "... the bottomlands for corn and pasture, the uplands for grain, tobacco,..."

The earliest economic mainstays of this area were characterized by farming, milling, and small trading posts, which were usually situated along well established overland routes, such as the Trading Path. During most of the eighteenth century, Durham County's cultural landscape was characterized by the settlement of many small land grants, which were occupied primarily by white yeoman farmers, unlike the larger plantation tracts settled in the coastal counties (Anderson 1985; Hargrove et al. n.d.:4.1-4.8). Although Black slavery was a standard component of the region's agricultural economy even at this early period, most yeoman farmsteads were small subsistence and production units; by 1780 only a small number of slaveholders owned more than 20 slaves (Anderson 1985:6).

During the first three decades of the nineteenth century, the North Carolina piedmont became somewhat isolated from the more vigorous growth areas of the state, due in large part to stagnation in the development of overland transportation routes and the lack of navigable waterways (Hargrove et al. n.d.:4.1-4.8). By the 1830s, substantial westward out-migration of this region's population had occurred due to widespread poverty and massive soil depletion (Hargrove et al. n.d.; Trimble 1974).

After rail lines were established in the piedmont in the mid-nineteenth century, both railroad stops and textile mills became important to the Confederacy during the Civil War (Troxler 1984). Although a rail line was established in the eastern Falls Lake project area by the early 1840s, large portions of Wake and Durham Counties still remained impoverished and isolated from regional markets and urban areas (Hargrove et al. n.d.:4.1-4.8). The end of the Civil War brought significant changes to piedmont North Carolina, as well as to other regions of the southeastern United States. The most critical results were a weakened economic base and political structures, and reorganization of the agricultural labor base (i.e., wage labor and farm tenancy) as a result of abolition of slavery (Orser and Holland 1984:111-113; Orser 1986).

Hargrove et al. (n.d.:4.1-4.8) note a trend during the last quarter of the nineteenth century toward smaller farms in North Carolina. At that time, cotton had become the economic mainstay in much of the piedmont, particularly in Wake County. During the late nineteenth century, the natural abundance of water power made the establishment of a textile industry both profitable and dependable in large areas of the piedmont.

In Durham County, tobacco farming became dominant (Hargrove et al. n.d.; Kirby 1976). By the 1880s, the town of Durham had evolved into a major tobacco market, particularly after 1881 when cigarette manufacturing began in this area. The early twentieth century witnessed continued growth of the tobacco industry in Durham County, while cotton production remained focal in areas to the east (Hargrove et al. n.d.:4.1-4.8).

Until recently, the Falls Lake area has retained its rural character. However, as noted by earlier research, this is likely to change with use of Falls Lake as a recreational and hunting area (Hargrove et al. n.d.). The lakefront and associated areas will undoubtedly stimulate urban and suburban development throughout the reservoir impoundment area (Kirby 1976). Today, Durham and Granville Counties are listed as "urban diversified" industrial regions (Clay et al. 1975:212), and are surrounded by some of the most densely populated cities in the state.

Although 31Dh234 is not located within the National Register-defined boundaries of the Bennehan-Cameron Plantation Historic District, the site was part of the Brick House Quarter section of that plantation, which was one of the largest in the state and affected land use in the Falls Lake project area. In 1768 Richard Bennehan of Petersburg, Virginia migrated to Snow Hill Plantation in piedmont North Carolina. This property was owned by William Johnson, who managed 400 acres and operated a store near the Great Trading Path west of Little River. Bennehan moved in to assist Johnson in operating the store, in which he subsequently acquired 1/3 and then 1/2 interest. Eight years later, Bennehan bought the former home of the sheriff of Orange County, a Loyalist named Tyree Harris; this house remainded standing until the 1970s (Anderson 1985:5-6). The property known as Brickhouse Plantation was located on a ridge top between Flat River and Knap of Reeds Creek. The Brickhouse site is located just outside Corps holdings, and is thought to contain some archaeological potential (Hargrove et al. n.d.:7.170).

After the death of William Johnson in 1785, Bennehan continued to operate the store at Snow Hill until 1787, when he opened a new store near the former home and tavern of Thomas and Judith Stagg. In the late 1780s or early 1790s, after Bennehan acquired the Stagg home and land, his family moved from Brick House to Stagville (Anderson 1985:10).

In 1803 Duncan Cameron, a prominent Hillsborough lawyer, landowner, and state legislator, married Bennehan's daughter, Rebecca. From that time, the combined resources of the Bennehan and Cameron families eventually grew into one of the largest plantation holdings in North Carolina, as these families bought and consolidated many of the smaller

farmsteads which were vacated as a result of massive out-migrations from this region to more profitable lands to the west (Murray 1983:288-289; Anderson 1985:51).

The center of the Bennehan-Cameron plantation was the Stagville-Fairntosh area, which has been placed on the National Register of Historic Places as an historic district. Located at the confluence of the Eno, Flat, and Little Rivers, the 30,000 acre Stagville-Fairntosh plantations were self-sufficient units, each one having its own blacksmith shop, chapel, distillery, grist mills, and tannery (Anderson 1988:84).

In 1837, Paul Cameron, assumed management of Stagville and Fairntosh. Under his direction, the promotion of scientific farming continued until the Civil War. The war depleted the Bennehan-Cameron wealth, but the plantations remained largely intact, mostly due to Cameron's agricultural and industrial diversification, which recovered much of the family's lost wealth.

The land's integrity continued under Cameron's son's management, which began in 1891. However, after Bennehan Cameron's death, the manor houses eventually fell into disrepair. However, Fairntosh has since been restored, and Stagville is operated by the State of North Carolinas as an historic preservation center.

3.0 RESEARCH DESIGN

3.1 Previous Archaeological Investigations at Falls Lake

Prior to the 1960s only a handful of sites had been recorded in the Falls of the Neuse area. Joffre Coe recorded several sites during the 1930s and local collectors had known of sites for years. The first inventory survey for the Falls Lake reservoir was conducted from 1968-1970 by the Research Laboratories of Anthropology at the University of North Carolina-Chapel Hill, in conjunction with the National Park Service. Under the overall direction of Dr. Joffre L. Coe, the field work was supervised by Alexander H. Morrison II and later by Bennie C. Keel.

The objective of the UNC survey was to document late prehistoric and protohistoric occupation of the Falls of the Neuse area by examining "almost every likely location" in the floodplain by pedestrian ground surface examination (Keel and Coe 1970:15); no subsurface testing was performed. The survey located 46 archaeological sites, ranging in occupation from the Early Archaic to the Historic periods. Most of these sites reflected Middle and Late Archaic components. The most important discovery was the location of a Contact period site (31Dh6) believed to be the Indian village of Adshusheer, which was visited by John Lawson in 1701 (Lefler 1967). Later research by Archaeological Research Consultants, Inc. suggests that this may have been the site of Enotown, an Indian village visited by John Lederer in 1670 (Cumming 1958), rather than Adshusheer (see below).

In addition to the bias created by the lack of subsurface testing, the UNC researchers cited collector activity, stream silting, agriculture, and climax vegetation as factors which hampered their effort to locate other archaeological resources. UNC recommended data recovery at four sites, testing at twelve sites, additional surface collection at twenty-three sites, and no further investigation of seven sites. Additional survey of floodplain areas with poor surface visibility during the initial survey was also recommended to locate additional archaeological sites which may have been missed.

In 1974 and 1975, a followup inventory survey was conducted by the Research Laboratories of Anthropology at UNC. The second survey was designed to augment the results of the initial survey by concentrating on areas that had previously been inaccessible. The objective was to investigate "all areas ... which could reasonably be expected to produce evidence of aboriginal occupation" (Ward and Coe 1976:14). This included the careful examination of cattle trails, logging roads, drainage ditches, and erosional gullies. Many sites discovered by the initial survey were also revisited, but very little additional information was gleaned.

The two UNC floodplain surveys located a total of 74 archaeological sites. Ground surface visibility continued to impede site identification in the 1974-1975 floodplain survey, except in areas where the ground surface was visible. Also, no systematic survey methods were utilized, and the criteria for assessing site significance were not standardized. As in the earlier survey, the bulk of the prehistoric sites discovered in

1974-1975 appeared to represent ephemeral, seasonal Middle to Late Archaic base camps (Ward and Coe 1976:54). Limited test excavations were conducted at 10 sites, including the purported village of Adshusheer (31Dh6). Testing failed to reveal evidence of in situ material, except at 31Dh7 (a locus of the 31Dh6 complex), where a storage pit containing net impressed ceramics was excavated (Ward and Coe 1976:34).

In April-May 1977, Commonwealth Associates, Inc. (CAI) conducted a six week inventory survey of 8,100 acres (19% of the total Falls Lake project area) under contract with COE-W (Claggett et al. 1978). This systematically conducted survey was designed to sample all ecological and environmental zones in the floodplain, transitional, and uplands areas. Transect intervals of 3 to 5 meters were used in previously cleared areas, while 10-12 meter intervals were used in wooded areas. Shovel testing was conducted at 15 meter intervals in areas without ground surface visibility.

The 1977 CAI survey recorded approximately 150 Archaic sites with 202 discrete Archaic components, 12 exclusively Woodland sites, and 74 non-diagnostic prehistoric lithic scatters. More than 55% of all sites discovered were multicomponent (Claggett 1981:183). Of the total 235 prehistoric and historic sites identified by CAI, 17 were recommended for mitigation by means of controlled surface collection; this strategy was considered appropriate because of a lack of vertical stratification at these sites. Limited excavation was recommended at six sites, five of which were prehistoric sites containing middens or features; the remaining site was an historic cemetery.

Drawing on Archaic stage hunter-gatherer data collected from the CAI Falls Lake survey, Claggett (1981) tested the predictive strengths and weaknesses of four hunter-gather models. Three of the models (Caldwell 1958; Cleland 1976; Dunnell 1972), are derived directly from regional eastern United States data and empirical observations, while the fourth is based on ethnoarchaeological and ecological theory studies conducted on an Alaskan hunter-gatherer group (Binford 1978a, b). Claggett's key interest in examining these models revolved around three problem domains: settlement strategies, site function, and lithic technologies. Each models was considered by Claggett as a means of explaining changes in prehistoric systems as reflected by artifact assemblages and the distribution of sites.

The first model examined was developed by Joseph R. Caldwell (1958), who asserted that cultures should be viewed through time as unified wholes. Following this premise, he proposed that archaeological remains should reflect identifiable factors corresponding to tradition and innovative trends within and between cultures. Deviating from then-contemporary emphases on cultural taxonomy, Caldwell chose to interpret historical change in terms of broad economic developments, which could be defined archaeologically by local stylistic traditions.

Caldwell's analysis thus rested on three major premises (Caldwell 1958; Claggett 1981:5):

1. The Archaic tradition was based on "primary forest efficency."
2. The Woodland tradition saw the emergence of regionalized, largely

stylistic traditions.

3. Later Woodland and late prehistoric traditions were shaped by a gradual intrusion of a new economic and social base from Mesoamerica.

"Primary forest efficency" defined several aspects of culture which occurred during the Archaic sub-stage (Caldwell 1958; Claggett 1981:6):

1. A seasonal pattern of hunting and gathering economies.
2. The development of efficent hunting and storage technologies in interriverine zones.
3. A subsistence base revolving around shellfish gathering in littoral and riverine zones.

According to Caldwell's model, before the advent of agriculturally based economies, human groups largely subsisted by means of efficently exploiting the natural resources of the eastern woodlands. Along with the development of ever-more efficent hunting technologies was a growing tradition of reliance on a seasonal economic cycle, semi-sedentary settlement, and a materially richer lifestyle in this region.

Just after Caldwell's model was proposed, Charles Cleland (1976) began a study of the ethnozoology and animal ecology of the upper Great Lakes. Believing that prehistoric cultural adaptations could be viewed as a continuum from the highly specialized to the very generalized, Cleland developed a model called the "Focal-Diffuse Model." This model was based on a number of assumptions (Cleland 1976:60), including:

> The economic-technomic subsystem of a culture is central in understanding adaptation and the adaptive process,
>
> and
>
> cultural adaptations are patterned phenomena...[U]nder a specific set of environmental conditions and with the implementation of a particular technology, regular, consistent, and predictable patterns of resource exploitation will develop.

Cleland asserts that human economic systems are either focal or diffuse. According to Cleland's model, technological innovation is viewed as a prime mover in the process of efficiency, that is, a population's gaining increasingly more knowledge of their ecosystem, and, in an evolutionary sense, moving from a generalized to a focalized economy. In principal, this concept is somewhat similar to Caldwell's "primary forest efficency." Thus the Plaeoindian and Early Archaic traditions are considered to be focal; the Middle Archaic to Middle Woodland traditions are diffuse; and the Late Woodland and Mississippian traditions are examples of focal economies.

The third model examined by Claggett in relation to the Neuse River data was developed by Dunnell (1972:72-76) as a result of his investigation of the Fishtrap Reservoir area of the Appalachian Mountains in eastern Tennessee. Dunnell's research centered on the observed change

within a basically autocthonous cultural continuum in this geographically isolated area, which was assumed to have resisted extra-regional influences until late in the prehistoric period.

Dunnell's model was based on a clear distinction between formal (stylistic) and functional attributes of tools. Functional criteria, such as edge, shape, raw material, etc. are those which indicate the actual (etic) role that the artifacts played in the users' adaptive (cultural) system. Formal criteria are those that reflect culturally determined (emic) ideas concerning a tool's general morphology. Dunnell believed that the functional analysis of artifact assemblages should focus on determining the long-term modification of subsistence strategies, from hunting and gathering economies to agriculturally based economies. He failed, however, to take into account the effects of environmental change on technological developments (Claggett 1981:17).

The final model of Archaic stage adaptations examined by Claggett is one developed by Binford (1978a, b), which sets forth the major observable distinctions between the cultural systems of foragers vs. collectors, and their respective patterns of organization of residential mobility, subsistence patterns, and artifact technology. Binford's model was developed from five years of direct observation of a Nunamiut Eskimo hunting stand in north central Alaska.

Taking a systemic approach, Binford was able to define differences among hunter-gatherer groups, such as the !Kung Bushmen of Africa and the Nunamiut of Alaska in their subsistence and settlement patterns. According to Binford, foragers gather on an encounter basis, "mapping on" to resources by adjusting group size and frequently moving their residence. Bushmen should therefore be classified as foragers because of their high residential mobility, low bulk input, and regular daily food procurement strategies. On the other hand, collectors, such as the Nunamuit, are ecosystem-specific, logistically organized, and tend to establish field camps away from the residential base in order to procure specific resources. In addition, collectors store food during part of the year, in direct contrast to foragers, who do not rely on storage.

As Claggett (1981:233) stresses:

> All four models emphasize the adaptive capabilities of cultural systems, as manifested in sequences of artifacts and settlement patterns, which had or have the potential to evolve into new forms when stressed by environmental changes.

However, none of the models, with the partial exception of Binford's (when applied to the Late Archaic period), adequately explains the Neuse River data. Caldwell grouped Early and Middle Archaic adaptations as diverse economies, and predicted that these sites would be small and widely dispersed in areas marginal to major stream valleys, while Late Archaic groups would be concentrated in riverine environments. Cleland and Dunnell characterize Early Archaic systems as specialized adaptations to Late Pleistocene and Holocene environments.

Dunnell's ideas about the Late Archaic are different from those of

Caldwell and Cleland, due in part to the relatively isolated nature of the Appalachian geographic region. The Fort Ancient groups that replaced Archaic and Woodland traditions in the Fishtrap study area had diverse economies, limited tool inventories, and impermanent sites, characteristics which are much more characteristic of a typical southeastern Middle Archaic site.

When projected on the Falls Lake data, Binford's ideas about hunter-gatherers and the collector-forager model allow characterization of Late Archaic groups as a combination of the two basic patterns. This is probably due to (1) the very general nature of Binford's argument and (2) his de-emphasis on simple occurrence of particular tool types, food resources, or site categories, with substitution of more general technological, social, and economic organizational patterns.

In summary, Claggett (1981) suggests that a generalized subsistence economy continued into the Late Archaic along the Neuse River in the North Carolina piedmont. In combination with known factors of population increase, the possible establishment of group territories, and newly developed subsistence bases elsewhere in the piedmont, the conditions necessary for the occurrence and growth of a collector-forager strategy, such as that proposed by Binford, appear to have existed. The other models examined are too specific to the geographic areas where they were developed.

In the spring of 1980, GAI Consultants, Inc. (GAI) conducted an archaeological survey and testing project of 11 sites (seven open sites, four rock shelters) in 10 locales in the Falls Lake impoundment area. The goal of this study was to determine these historic properties' eligibility for the National Register of Historic Places, using federally established procedures and criteria (36 CFR 800, 36 CFR 60). Investigative methods included surface collection, shovel tests, and limited excavation units at each site. The only property considered eligible for the National Register of Historic Places was the 31Dh6 complex (which includes 31Dh7, 31Dh55, 31Dh56, and 31Dh57)(McCullough et al. 1980).

During May-June 1981, Archaeological Research Consultants, Inc. (ARC) conducted a systematic survey of 350 floodplain acres along Ellerbee Creek near its confluence with the Neuse River (Baker and Hargrove 1981). The goal of this survey was to locate the protohistoric village of Adshusheer and other Contact period sites thought by historians to be located in this vicinity (Cross 1979). The field strategy for this survey consisted of placing transects at 100 meter intervals; shovel tests were installed along each transect at 50 meter intervals. Although this survey failed to locate any protohistoric sites, 14 Middle to Late Archaic sites were discovered on level landforms overlooking the floodplain, which was swampy, forested, and devoid of newly-recorded sites. As a result of the survey, ARC researchers suggested that Adshusheer was probably located south of the Falls Lake area, within the New Hope basin near the headwaters of Lake Jordan (Baker and Hargrove 1981; Hargrove et al. n.d.); and that the 31Dh6 complex represents the site of Enotown, which was visited by John Lederer in 1670.

In March-April 1981, ARC conducted additional testing at the Wells

Rock Shelter (31Wa282), previously assessed by GAI in 1980. This site had yielded evidence of stratigraphically ordered Middle Archaic (Guilford and Stanly complex) materials, but due to the low density of artifacts and the lack of cultural features, the site was not considered eligible for the National Register of Historic Places (McCollough et al. 1980:3). ARC excavated a series of test trenches and auger tests immediately outside the shelter. This testing confirmed the GAI assessment that the site contained a low density of artifacts, no cultural features, and no intact stratigraphy. ARC also concluded that the site had been damaged by flooding and deposition (Baker and Hargrove 1981:9).

From April 1982 - January 1983, ARC conducted an inventory survey of 10,450 acres in the Bennehan-Cameron Plantation Historic District and certain proposed recreational and wildlife subimpoundment areas of the Falls Lake project. ARC also undertook data recovery at a number of prehistoric sites in Rolling View Archaeological District, as well as test excavations at the Neuse River Cache Site (31Wa423) (Hargrove et al. n.d.). More than 500 sites were discovered or revisited by ARC crews within the Falls Lake project.

The most recent archaeological investigations conducted at Falls Lake were undertaken by CAS from September 18 - November 6, 1987 (Anthony and Drucker 1988). Inventory survey of 142 acres and testing of 10 sites previously identified by ARC was required in order to meet compliance with historic preservation mandates for COE-W undertakings, including construction of seven wildlife subimpoundments and identification of soil borrow pits in the project area. With the exception of four historic properties, all archaeological sites identified and relocated by CAS received archaeological clearance.

Site 31Gv137, which was identified during the 1987 CAS inventory and testing project at Falls Lake, is located approximately 606 meters (2000 feet) east of 31Dh234 (Anthony and Drucker 1988:75). Both are relatively shallow sites, both have Middle Archaic and Middle Woodland components, and both reflect a diversity of material culture and lithic raw materials.

3.2 Previous Archaeological Investigations at 31Dh234

Archaeological site 31Dh234 was first recorded in 1977 by CAI during their intensive survey of Falls Lake (see above). At that time the site was in a mixed hardwood forest on a high knoll overlooking Flat River (Claggett et al. 1978). Site boundaries were defined as 100x50 meters N/S x E/W). Early and Late Woodland components were most visible, with a possible Archaic component noted. This evaluation was based on the recovery of Uwharrie and Yadkin chipped stone projectile points, two net-impressed sand tempered sherds, and two dart points, believed to be of Archaic period morphology. The investigative report noted that the site had been extensively disturbed by post-depositional processes, primarily clearing and subsequent erosion. Between 1977 and 1982, the mixed hardwood forest covering 31Dh234 was cleared and replaced by pasture, and a free-flowing spring nearby was dammed to form a fishing pond (Sam Wiseman, personal communication 1988). Both conditions existed at the time CAS performed data recovery at the site.

In 1982-1983 ARC made a surface collection of the site and installed

shovel tests and 1x1 meter test units at 31Dh234 to assess its integrity and content. ARC defined the north-south site boundaries as had CAI (100 meters), but redefined the east-west boundary, which "extends eastward out of the project toward the crest of the ridge between the Flat River and Knapp of Reeds Creek" (Hargrove et al. n.d.:7.189); no revised east-west dimension was recorded.

ARC's surface collection concentrated on the dirt-gravel road which bisects the site, as well as the surface of the newly created pond and dam and from areas east of the pond (i.e., outside the Corps-defined site limits). Shovel tests were placed on the north side of the road (Shovel Test #1), the south side of the road (Shovel Test #2), and the southwest (highest elevation) part of the site (Shovel Test #3). Shovel Test #1 yielded three secondary flakes and two sand tempered Woodland sherds. Shovel Test #2 yielded five secondary flakes. The most productive test, Shovel Test #3 produced a Kirk chipped stone projectile point, a Guilford chipped stone projectile point, one drill/perforator, 32 secondary flakes, three primary flakes, six unmodified angular fragments of lithic raw material, and five potsherds.

The Woodland sherds recovered from Shovel Test #3 were collected from Level 1 (0-15 cm), while the two diagnostic Archaic projectile points were recovered from Level 2 (15-35 cm). Artifact density in this test, along with evidence of sub-plowzone strata containing Woodland deposits overlying Archaic deposits, led ARC to install three 1x1 meter test units across the defined site area to further evaluate the potential presence of stratified deposits.

The first 1x1 meter ARC test unit was excavated at the highest site elevation, adjacent to Shovel Test #3. A dark brown, clay loam Plowzone (Level 1, 0 - 10 cm below surface) yielded two Woodland triangular bifaces reworked as drills or perforators, and 22 ceramic sherds. Level 2 (10 - 20 cm below surface) yielded 348 lithic artifacts and 17 sherds, while Level 3 (20 - 25 cm below surface) yielded 51 lithic artifacts and one sherd. No cultural features were noted in the subsoil.

A second 1x1 meter unit was excavated 15 meters north of Test Unit 1. The Plowzone (0 - 12 cm below surface) yielded a variety of Archaic and Woodland bifaces, including a Guilford point, seven Woodland hafted bifaces, and 28 ceramic sherds. In situ artifacts were exposed and mapped at the base of the Plowzone. Level 2 (12 - 21 cm below surface) yielded 480 lithic artifacts and 31 sherds. Level 3 (21 - 33 cm below surface) yielded 20 lithic artifacts and no ceramic materials. No cultural features were exposed in the subsoil.

Test Unit 3 was excavated north of the farm road which bisects the site. Only five lithic artifacts and no ceramic sherds were recovered from the Plowzone (0 - 10 cm). The 10 cm cultural zone encountered below the Plowzone in Test Units 1 and 2 was only 5 cm thick in Test Unit 3. A total of 15 lithic artifacts and two ceramic sherds were recovered from Level 2 (10 - 15 cm). Level 3 (15 - 26 cm) yielded only two lithic artifacts. No cultural features were noted in the subsoil.

ARC's testing program at 31Dh234 concluded that the dominant cultural component at the site was Woodland, and that the likelihood of encoun-

tering Archaic deposits below the Woodland zone was good. Based on site integrity and significant research value, ARC recommended that 31Dh234 be determined eligible for the National Register of Historic Places, both for its prehistoric research value and as a contributing property in the Bennehan-Cameron Plantation Historic District.

Based upon this recommendation and verification of sub-plowzone site integrity, COE-W prepared a National Register of Historic Places Nomination/Inventory Form for 31Dh234 under Eligibility Criteria [a] and [d] (36 CFR 60.4). Justification of eligibility was based on the site's potential to contribute to a better understanding of the nature of Archaic and Woodland period occupation of the North Carolina piedmont, as well as a better understanding of the cultural transition between these two cultural periods in the Neuse River basin.

3.3 Prehistoric Land Use Patterns and Models

Information gathered from the Falls Lake area and elsewhere in the North Carolina piedmont concerning prehistoric site distributions and inter-assemblage diversity has shown that significant "patterns" can be discerned through analysis of the spatial distribution of prehistoric components. This is particularly true for the analysis of temporal and functional trends, both at the multi-site and intra-site levels (Claggett et al. 1978; Claggett and Cable 1982; Hargrove et al. n.d.).

One important finding demonstrated at Falls Lake is the geographical overlap between the distribution of Archaic and Early Woodland campsites (Claggett et al. 1978; Hargrove et al. n.d.). This pattern is reinforced by the multicomponency of many of these sites i.e., reoccupation of Archaic campsites by Woodland populations, a trend thought to be associated with maximization of predictable, seasonal abundance of woodland food resources, such as deer, bear, nuts, berries, etc. The primary location of such campsites has been found to occur in the transitional (mesic) ecotone between bottomland and upland hardwood communities, and appears to be associated with a "diffuse" food resource economy (Claggett et al. 1978; Claggett and Cable 1982). This diversified procurement strategy, rooted in the Archaic tradition of "primary forest efficiency," (Caldwell 1958) may have persisted alongside a developing "focal" orientation toward (horticultural?) use of bottomland alluvial deposits later in the Woodland period (Ward 1983:73; Wilson 1977). Findings suggestive of such a pattern have been recorded in the South Carolina-Georgia piedmont (House and Ballenger 1976; House and Wogaman 1978; Taylor and Smith 1978; Anderson and Schuldenrein 1985).

In order to examine the variability in artifact assemblages through prehistoric time, recent research has attempted to go beyond the more traditional goals of culture history and descriptive typology, toward isolating and monitoring the "technological variables that reflect adaptational changes in cultural systems" (Claggett and Cable 1982:9). This focus involves examination of artifact morphology and definition of tool function, as well as the nature of artifact distribution across geographic space. Of course, these inquiries are based on the comparative information established by typological reconstruction and cultural chronology (Coe 1964; Chapman 1975; Griffin 1978).

In addition, certain broad-based research questions can be fruitfully examined on the basis of single-site investigation. Such questions applicable to 31Dh234 include the association of locally available food resources with shifts in lithic and/or storage technology; the effect of population mobility on tool kits, and the relationship between procurment activities and residential organization (site size). Within this framework, 31Dh234 provides an opportunity to examine a single site artifact assemblage, specifically intra-site distributional patterning, to determine probable prehistoric use of the mesic habitats which define the local environment. It was expected that the study of specific tool types and/or debitage which occurs in certain areas of the site or which define 31Dh234 as a specific site type, may provide a firmer basis for predicting functional variation in site selection and use between upland and lowland environments (cf. Claggett et al. 1978).

3.4 Research Context for 31Dh234

The archaeological value of 31Dh234 lies in its relevance to anthropological questions concerning (a) the nature and character of aboriginal subsistence strategies during the Early to Middle Archaic and Woodland periods, and (b) diachronic change in patterns of subsistence and settlement, procurement, and technology at a single site which was reoccupied over a period from ca. 8500 B.C.- A.D. 1725. Based on survey and excavation data collected from the Carolina piedmont, the degree of site stratification and integrity indicated at 31Dh234 was considered unusual for upland landforms of this region (Hargrove et al. n.d.).

Having previously recorded and tested sites within the Falls Lake subimpoundments which are nearly identical to 31Dh234 in physiographic location, size, stratigraphic nature, and content, CAS sought to build on, rather than duplicate, the data and hypotheses generated by previous investigations of sites at Rolling View Historic District and Haw River. Systematic investigation of 31Dh234 was guided by its ability to complement and augment scientific knowledge concerning the history of human adaptation to piedmont environments during the Holocene (geologically recent) period. Questions about changes in aboriginal subsistence patterns, procurement strategies, and technology are behavioral elements of the site's culture history, and were therefore examined from an anthropological perspective (cf. King 1980).

Since investigation of these questions requires a certain knowledge of past environments at the site, the perspective of cultural ecology was incorporated into the general research design (Odum 1971; Flannery 1971). In attempting to better understand the differences and continuity in the forms of human adaptation to food spectra and local environments through time, analytical methods used in examining 31Dh234 focused largely on the functional aspects of artifact assemblage and sub-assemblages (i.e., definition of tool kits and interpretation of feature contents).

3.5 Site-Specific Hypotheses and Test Implications

Major hypotheses and archaeological test implications which can be derived from a study of 31Dh234, using a cultural ecology-subsistence systems framework, were posed as follows:

Hypothesis #1: The intensity of aboriginal occupation at 31Dh234 decreased from the Archaic to Woodland periods. This may have been in response to shifting strategies of resource procurement within the transitional and upland environmental zones.

Archaeological Test Implications: Controlled surface collection was expected to reveal clusters of artifacts representing only a few incidents of successive site use during the Archaic period, and less during the Woodland period. If clusters were found to be temporally and spatially discrete, this would provide more accurate chronology and functional separation of the individual components of "low-density" site occupation.

In addition, the temporal association of tool kits and the stratigraphy at the site, as well as the validity and temporal bracketing of "shallow" site assemblages, was planned through chronometric analysis derived from either sealed or stratified contexts. However, no suitably preserved materials or sealed contexts were identified at the site to allow this analysis.

Hypothesis #2: The technological form of tool kits at 31Dh234 reflects the composition and distribution of local food resources rather than temporal differences in site occupation.

Archaeological Test Implication: An examination was made of the lithic assemblage (clusters vs whole site) at 31Dh234 to determine whether similar types of usage (edge wear/tool form) occurred in lithic tool kits, regardless of temporal component. A caveat concerning interpretation of edge wear on plowzone lithics was noted.

Hypothesis #3: Local resource exploitation by the occupants of 31Dh234 was characterized by a diffuse economy.

Archaeological Test Implications: On an intra-site basis, both cultural factors involved in the procurment of wood for shelters, boats, tools, or cooking fires), and organic remains (medicinal plants, food plants, terrestrial fauna) provide the best evidence of broad economic patterns which contribute to site selection and subsistence. Examination of debitage type, stone tool form, and ceramic vessel form was made to detect functional "clusters" indicative of a diversified procurement strategy. If feature preservation had permitted, organic food remains would also have been analyzed for food value and habitat context, relative to the site's location.

Hypothesis #4: Sites occurring within the transitional and upland zones of piedmont drainage basins reflect short-term occupation campsites oriented towards procurement and/or processing of locally available foodstuffs.

Archaeological Test Implications: Examination sought the following patterns: absence of storage features, absence or near-absence of storage vessels (jars); tool kits reflecting low production costs, such as "expedient" tool kits with a majority of unretouched unifaces, other unifacial flake tools, and small hammerstones; absence or near absence of non-local lithic raw materials, along with absence of "curatable" bifaces

(e.g., knives, heavily retouched projectile points).

Hypothesis #5: Shallow multicomponent sites which occur on upland landforms contain "compressed" or spurious vertical stratigraphy, with horizontal stratigraphy a more reliable indicator of componency and intra-site occupational distribution.

Archaeological Test Implications: A variety of natural and taphonomic processes may affect the reliability of explanation and interpretation of archaeological remains at shallow, deflated sites. Substantial evidence was sought of post-depositional processes, such as bioturbation, clearing, cultivation, erosion, and collector activity; reduced visibility of chronological separation within minimally differentiated soil zones; taphonomic processes, such as rodent and/or human activity relative to archaeological bone and artifacts (Efremov 1940).

4.0 DATA RECOVERY STRATEGY AND METHODOLOGY

4.1 Fieldwork Objectives

The Corps-defined site area of 31Dh234 encompasses approximately 1.25 acres of a knoll overlooking Flat River (Figs. 2, 3). Although previously forested, the site is now a fallow field and pasture, accessible by dirt-gravel farm road. Site deposits have been subject to vertical mixing to a maximum depth of approximately 20 cm below surface. CAI and ARC reported widely differing subsurface integrity, with CAI indicating extensive disturbance to archaeological deposits in the upper soil layer before the most recent deforestation and cultivation, and ARC indicating only marginal disturbance after these activities.

Although the Woodland period site occupation appeared to be largely contained within the Ap and upper A soil horizons (0-20 cm), there was a possibility that Early to Middle Archaic occupations existed within an older, less disturbed zone (21-35 cm below surface). Investigative strategies that were implemented by CAS therefore sought to maximize recovery of three types of cultural patterning which this type of depositional context suggests:

a. Temporally stratified occupations (vertical stratification),
b. Spatially stratified activity areas (horizontal stratification),
c. Intact subsurface occupational features (sealed contexts, such as hearths, storage pits, or postholes).

The field strategy and tactics utilized for data recovery at 31Dh234 reflected a practical, positivist approach, whose premise is that cultural remains reflect both synchronic and diachronic cultural processes. In order to characterize each occupational component and the depositional relationship of one component to another, careful provenience segregation was essential. Analytical methods appropriate to the data recovery effort were selected for their specific utility, replicability (recognizeability in the comparative literature), and relative simplicity. This reflects not only the anthropological goals of the research strategy, but also a practical use of applicable expertise and facilities directly relevant to these goals.

Prior to the initiation of field activities, principal CAS project staff examined the existing artifact collection from 31Dh234; reviewed existing archaeological literature pertaining to Falls Lake, Haw River, and other major piedmont archaeological projects; and consulted with COE-W archaeologist Richard Lewis, NC-OSA archaeologists Dolores Hall and Stephen Claggett; and UNC-Chapel Hill archaeologists Trawick Ward and Joffre Coe for guidance concerning research priorities. Primary field techniques on-site consisted of site discing and systematic controlled surface collection, followed by manual testing and block excavation of areas where subsurface features seemed most likely, based on computer-assisted analysis of surface artifact distributions. Limited mechanical soil stripping was also performed in areas exhibiting marginal or low surface occurrence of artifacts, in order to verify minimal cultural activity in these areas.

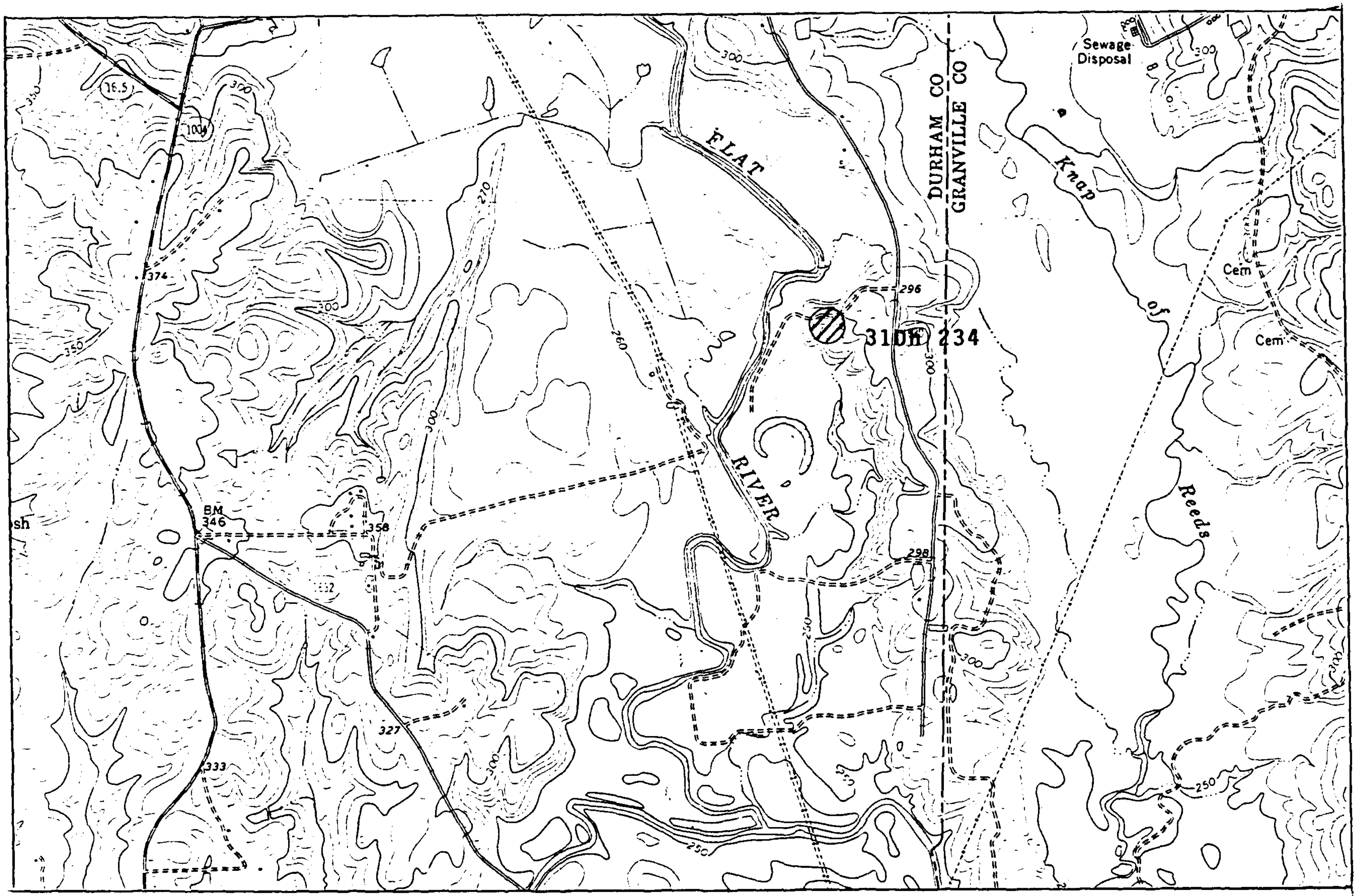


Figure 2. Site 31Dh234 vicinity. Source: USGS Northeast Durham (1973).

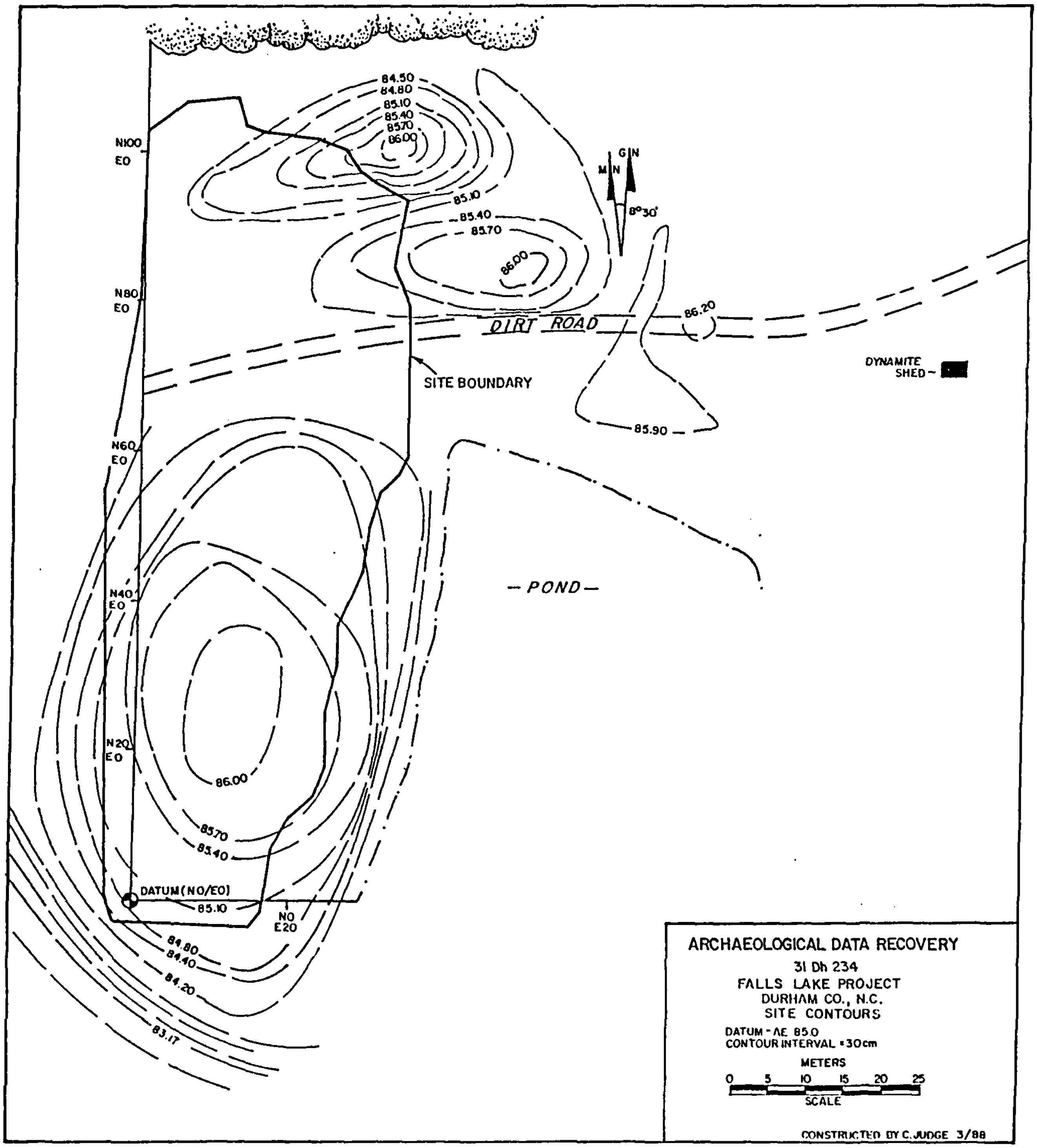


Figure 3. Site contour map, 31Dh234.

4.2 Evaluation of Surface Collection Strategy at 31Dh234

In cultural resource management studies, the limitations placed on research by factors like schedule, size of crew, cost, and time restrictions, require that artifact collection time and energy be used efficiently. A controlled surface collection was viewed by COE-W as a feasible, efficient, and relatively non-destructive means of identifying and isolating possible activity areas or loci indicative of occupation through time.

The ability of surface assemblages to adequately predict the presence of subsurface deposits has been demonstrated (Lewarch and O'Brien 1981; Redman and Watson 1970). Sites that have been reoccupied or occupied over a long period of time should produce representative surface samples; that is, if the actual discard/loss rate of artifacts on-site was high during its occupation, the surface sample should also be high (Lewarch and O'Brien 1981:305). Systematic artifact collection from surface contexts has also proved practical for answering both site-specific and regional research questions (Lewarch and O'Brien 1981:298). The validity of systematic, random surface collection at 31Dh234 can be examined by the generation of inferences concerning past behavior and cultural processes, and the testing of these inferences at significant statistical levels.

CAS chose a probabilistic sampling design to ensure total site coverage, to allow detection of subtle dispersion trends, and to avoid collector bias (Watson et al. 1971:122). A systematic random surface collection of 105- 3-meter diameter units was made of the site surface. The objective of the controlled collection was to provide a basis for validly projecting subsurface artifact class frequencies and activity areas to be further investigated by excavation.

Mechanical discing at archaeological sites for the purpose of increasing surface visibility and thereby collecting a representative sample of surface artifacts prior to the placement of excavation units is a standard research strategy in archaeological data recovery. Roper (1976) and Rudolph (1977) have emphasized the fact that lateral displacement of artifacts by tillage activities averages well under 5 meters, and does not significantly disturb cultural patterns of discard which may have survived on site surfaces. Controlled experiments on the effects of plowing or discing on artifact dispersion over a period of three years confirms Roper's observations (Trubowitz 1978:64).

The possibilty of introduced bias created by natural post-depositional processes, such as alluvial, aeolian, colluvial, and erosional dynamics, together with modern processes, such as agriculture, forestry, and collectors, must be taken into consideration when evaluating the results of controlled artifact collection. For instance, high concentrations of surface artifacts may very well be indicative of cultural disturbance (Redman and Watson 1970:285). Poor agricultural practices in the late nineteenth/early twentieth centuries caused widespread upland erosion (Trimble 1974). Systematic surface collection often is the only viable option for archaeological data recovery at severely deflated archaeological sites.

Aeolian and alluvial processes do not seem to have significantly affected 31Dh234. Previous investigations at the site (Hargrove et al. n.d.:7.188-7.191) suggested that intact, stratified Archaic and Woodland deposits may exist below the Plowzone. Test units excavated during Stage 2 of the data recovery program confirmed that a highly compressed stratigraphy occurs at the site, although disturbance to subsurface deposits by tree removal, blasting of tree stumps, and use of heavy logging and/or farm equipment was evident (see Features 1 - 4, 6 - 8, 10 - 11, 13 - 14). Stratified deposits on upland landforms are relatively rare in the Carolina piedmont (Hargrove et al. n.d.:7.191; House and Ballenger 1977). Their presence at 31Dh234 indicates that sheet erosion at 31Dh234 has probably been marginal and has occurred only recently.

Relic collector activity in the North Carolina piedmont has often been cited as constituting a significant bias in surface collection data (Ward and Coe 1976; Ward 1983:79; Hargrove et al n.d.). Collector activity at 31Dh234, however, appears to have been minimal (Robert Weaver, personal communication 1988).

4.3 Field Tactics

The following section details the field tactics and methods utilized by CAS to achieve the production goals set by contract, which included mapping, controlled surface collection, and systematic excavation at 31Dh234. The field operations were conducted in four stages. The first stage involved discing the site, followed by securing a permanent on-site datum, establishment of a metric grid, systematic random surface artifact collection, and detailed topographic mapping of the site. Once Stage 1 had been completed, the crew returned to the CAS laboratories for Stage 2, which included artifact processing, preliminary sorting, calculation of artifact frequency distributions, and density mapping of artifact classes and sub-classes. Analysis of the distributional mapping during Stage 2 allowed projection of probable prehistoric activity areas across the site, which merited more intensive investigation during Stage 3.

Stage 3, the second phase of fieldwork, focused on subsurface testing; expansion of two excavation blocks, as indicated by the results of the surface distributions and preliminary testing; and feature excavation. In addition, five transects were mechanically stripped of plowzone overburden during Stage 3. Stage 4 consisted of artifact processing, sorting, and analysis in the laboratory, which were conducted concurrently with and after the Stage 3 fieldwork.

Stage 1

Prior to 1988, Corps and State archaeologists had determined the limits of 31Dh234. After these limits were flagged by COE-W, CAS arranged to have the entire site area disced and sample-collected in late February and early March 1988 (Figs. 4, 5). As expected, high surface visibility was afforded in the disced site area, particularly after the area had received rain.

Prior to initiating controlled surface collection at 31Dh234, CAS established a permanent datum in the southwest corner of the site by

Figure 4. View of 31Dh234 surface after discing, looking southwest.

Figure 5. View of systematic surface collection in progress, looking west.

driving a 2-inch diameter section of PVC pipe into subsoil and anchoring it with cement. A backup datum was also established by driving gutter spikes into the bases of two nearby trees; this will enable triangulation and resetting of the site grid should the cement datum be disturbed.

Once the datum was set in, a North-South baseline was established following the entire length of the western site boundary. This baseline was staked at 5 meter intervals. The 5 meter stations provided (1) individual reference points for random placement of "dog-leash" sampling points, or collection units, across the entire site, and (2) reference grid markers for the placement of test units, excavation blocks, and mechanically stripped plowzone transects in selected site areas.

Topographic readings of 31Dh234 were made by transit level, using 20-degree intervals, beginning with the baseline and moving east of north in a clockwise direction. Elevation readings were recorded at 20-meter intervals along each of the 18 resulting radials.

A systematic random sampling strategy was employed as the basis for a controlled surface collection (Dixon and Leach 1978). Twenty-two east-west lines of sampling points were established, plus one north-south line (North-South baseline). A total of 105 randomly selected sampling points, or collection units (CUs) were designated and collected (Fig. 6). A transit level, compass, and metric tapes were used to accurately place all sampling points. Selection of distances grid east of the North-South baseline for each CU followed a systematic interval of K + R, where K=2 and R= a randomly selected, single-digit number between 1 and 5. Each CU consisted of a 3-meter diameter circle, the ground surface of which was exhaustively collected by a single person during a 5-minute interval. The timed interval basis was designed to standardize collector bias, and was sufficient to allow total collection of each sampling point, given the observed low to moderate surface artifact density. Twenty-two of the 105 CUs contained no artifacts.

The size of the CUs was reduced from that originally proposed (5 meters) when inspection of Corps-marked site boundaries revealed that the defined site area was smaller than originally indicated (Appendix C). Given the site's irregular boundaries and smaller size, 105 smaller CUs were feasibly collectible, rather than 120 larger ones.

<u>Stage 2</u>

The artifacts recovered from the systematic surface collection at 31Dh234 were washed, sorted, analyzed, accessioned, and cataloged in CAS's Columbia laboratory. By entering the distributional frequencies of the following material classes and sub-classes into the GIMMS (Geographic Information Mapping and Management System) statistical mapping program, CAS produced a series of maps which described a number of overlapping frequency distributions, and allowed the detection of small, but significant, artifact clusters (activity areas and temporal groupings) across the site surface. Use of this technique highlighted subtle distributional trends suggested by lithic debris, as well as the co-occurence of certain debitage classes with Woodland ceramics.

Frequency distributions were calculated and mapped for the following

artifact classes and sub-classes:

A. All Prehistoric Artifacts (Fig. 7)
B. Prehistoric Ceramics (Fig. 8)
C. Ceramic Surface Treatments (Fig. 9):

   C-1. Cordmarked
   C-2. Net Impressed
   C-3. Fabric Impressed
   C-4. Smoothed
   C-5. Brushed
   C-6. Plain

D. Total Lithic tools (Fig. 10)
E. Hammerstones (Fig. 11)
F. Bifaces (Fig. 12)
G. Retouched/Utilized Flakes (Fig. 13)
H. Total Lithic Debitage (Fig. 14)
I. Primary Core Reduction Debitage (Chunks, Primary Flakes, Secondary Flakes) (Fig. 15)
J. All Flakes of Bifacial Retouch (Secondary and Tertiary FBRs) (Fig. 16)
K. Fire Cracked Rock (FCR) (Fig. 17)
L. Unmodified Quartz Cobbles (Fig. 18)
M. All Lithic Raw Materials (Fig. 19):

   M-1. Quartz
   M-2. Crystal Quartz
   M-3. Rhyolite
   M-4. Argillite
   M-5. Jasper
   M-6. Chert

The major trends which were identified as a result of the distributional mapping included the following:

1. A close spatial correspondence between the occurrence of fire-cracked rock and unmodified quartz cobbles (Figs. 16, 17).
2. A close spatial correspondence between hammerstones and flakes of bifacial retouch (FBRs) (Figs. 11, 15).
3. A close spatial correspondence between hammerstones and core reduction debitage (Figs. 11, 14).
4. Concentrations of bifaces coinciding with concentrations of retouched and utilized flakes (Figs. 12, 13).
5. Absence of retouched/utilized flakes north of farm road (Fig. 13).
6. Bifaces concentrated in two discrete loci (Fig. 12). Observation of the distribution of bifaces collected from surface contexts outside the sampling points indicate a concentration of Archaic hafted bifaces in the vicinity of subsequently placed Excavation Block #2, while bifaces collected from sampling points adjacent to Excavation Block #1 form a Woodland concentration.
7. Lithic raw materials reflect more diversity in the southwest corner of the site (Fig. 19).
8. Woodland ceramics (Fig. 8) and hafted bifaces (see Item 6 above)

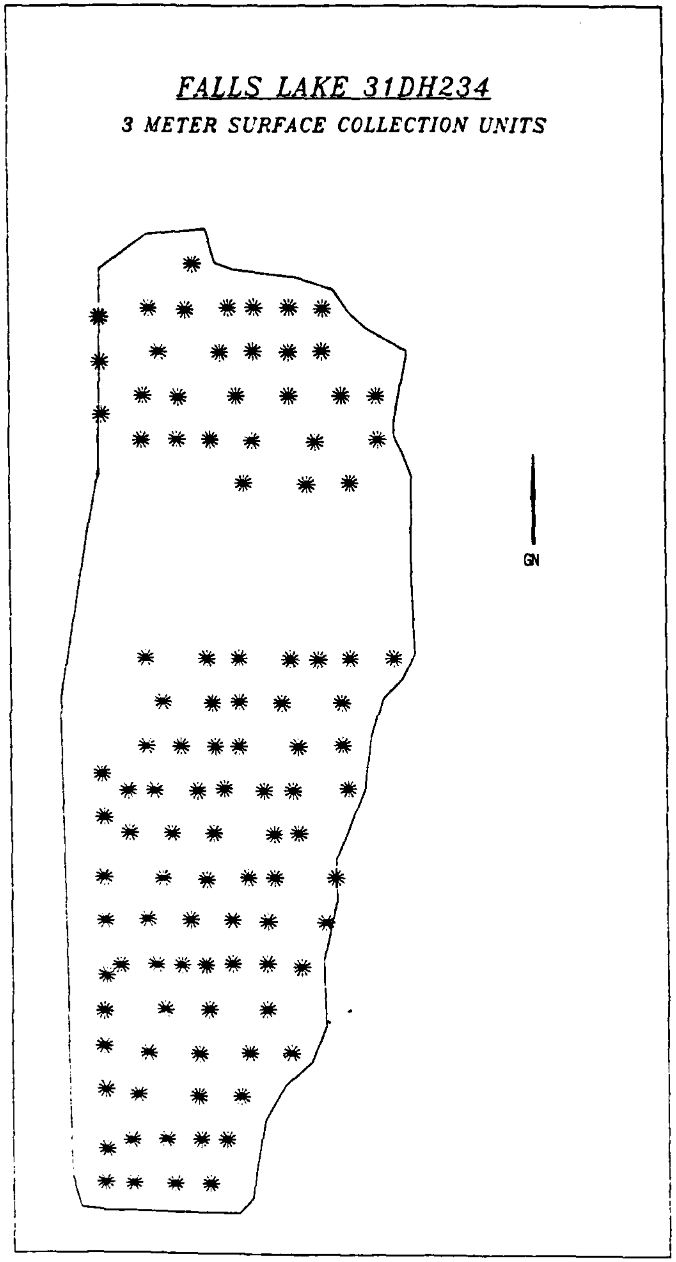


Figure 6. GIMMS surface distribution map depicting all surface collection units (CUs) at 31Dh234.

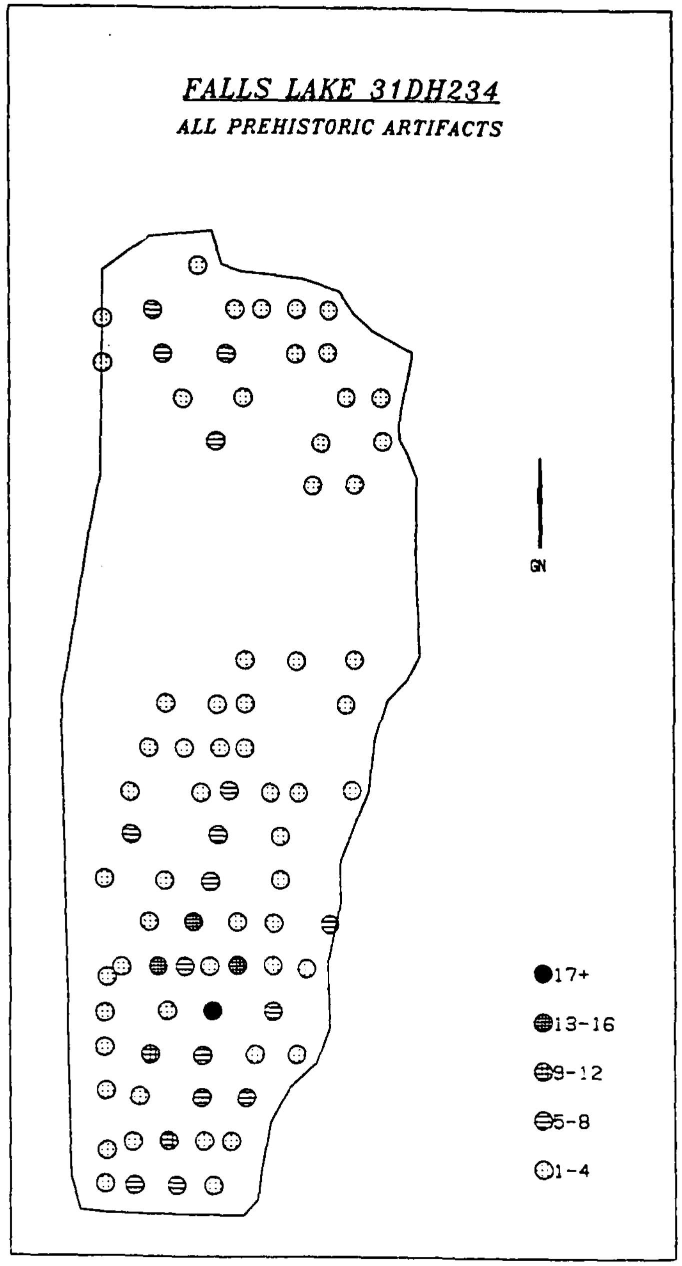


Figure 7. GIMMS surface distribution map depicting total prehistoric artifacts collected from 31Dh234.

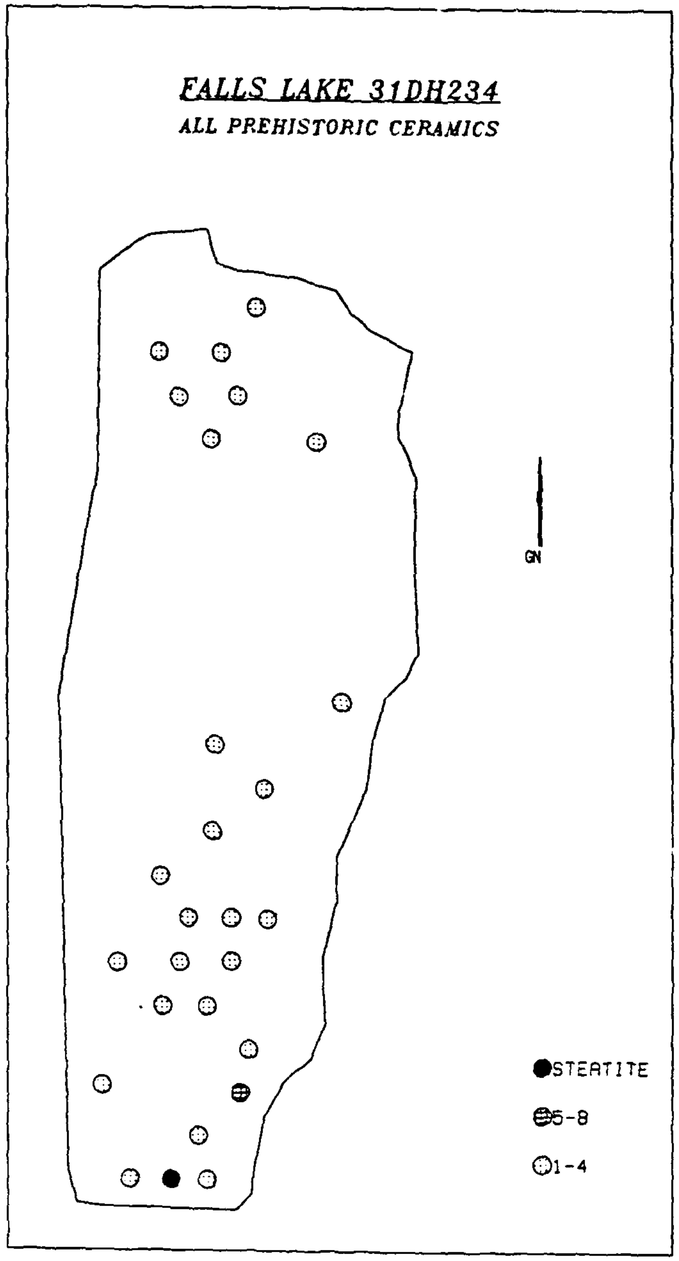


Figure 8. GIMMS surface distribution map depicting total prehistoric ceramics collected from 31Dh234.

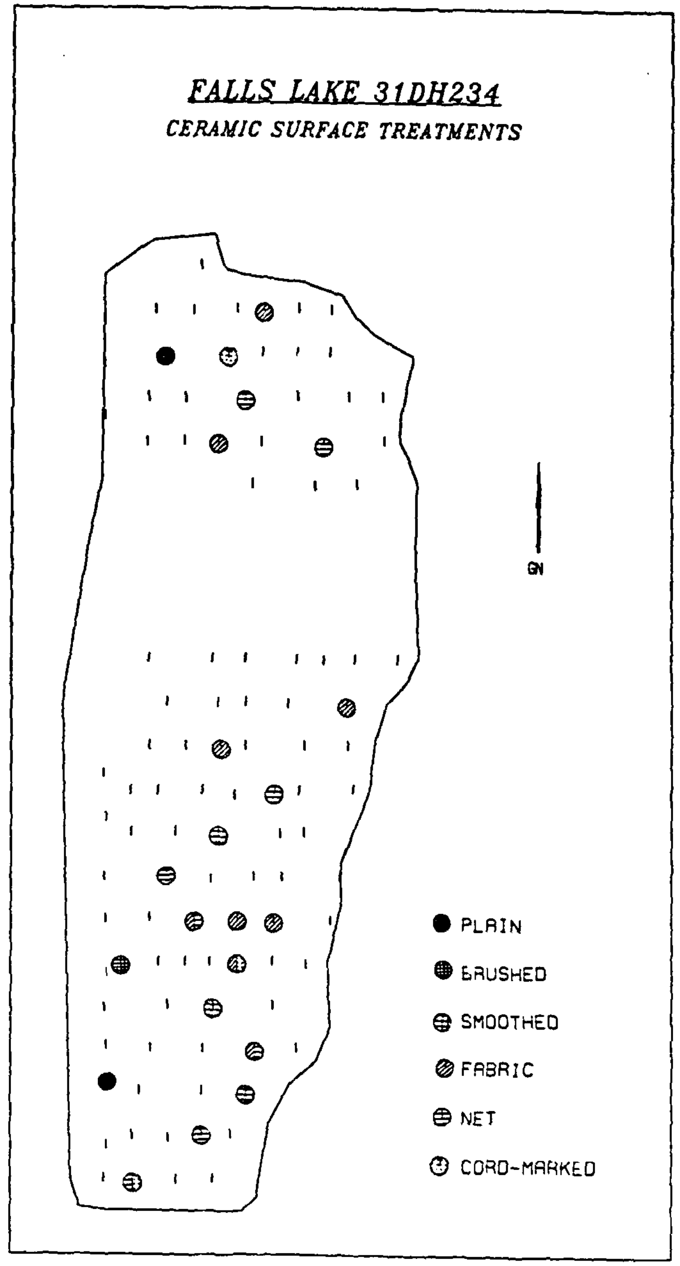


Figure 9. GIMMS surface distribution map depicting surface treatment on prehistoric ceramics at 31Dh234.

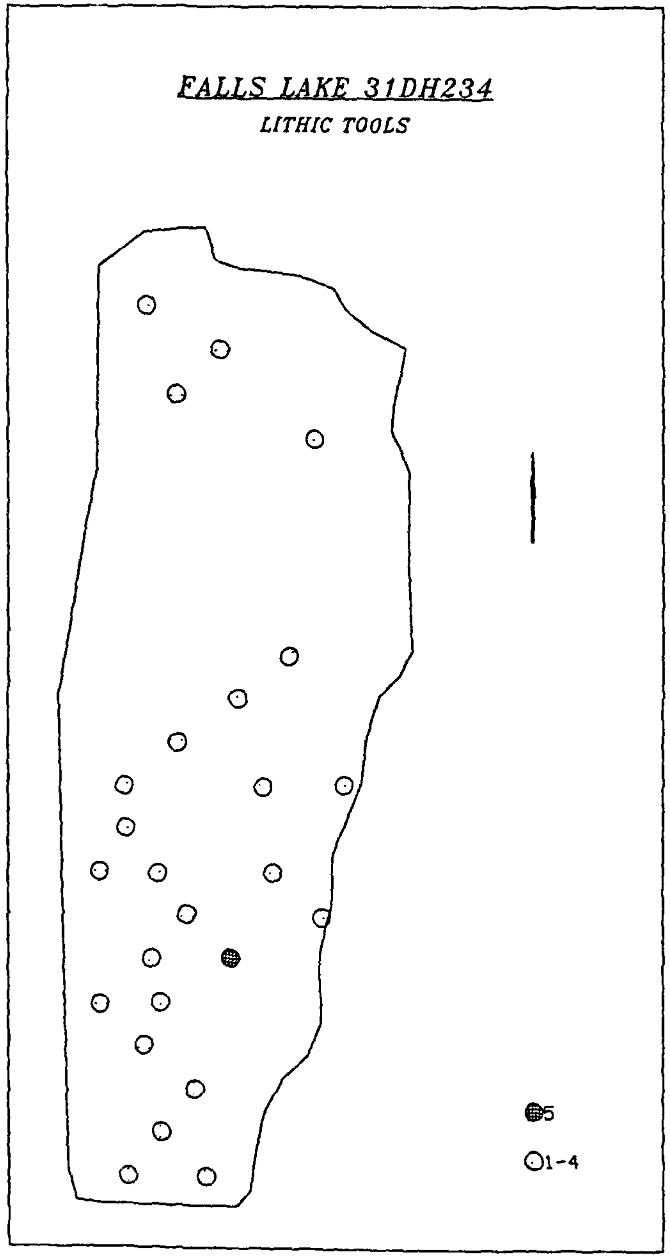


Figure 10. *GIMMS* surface distribution map depicting total lithic tools collected from 31Dh234.

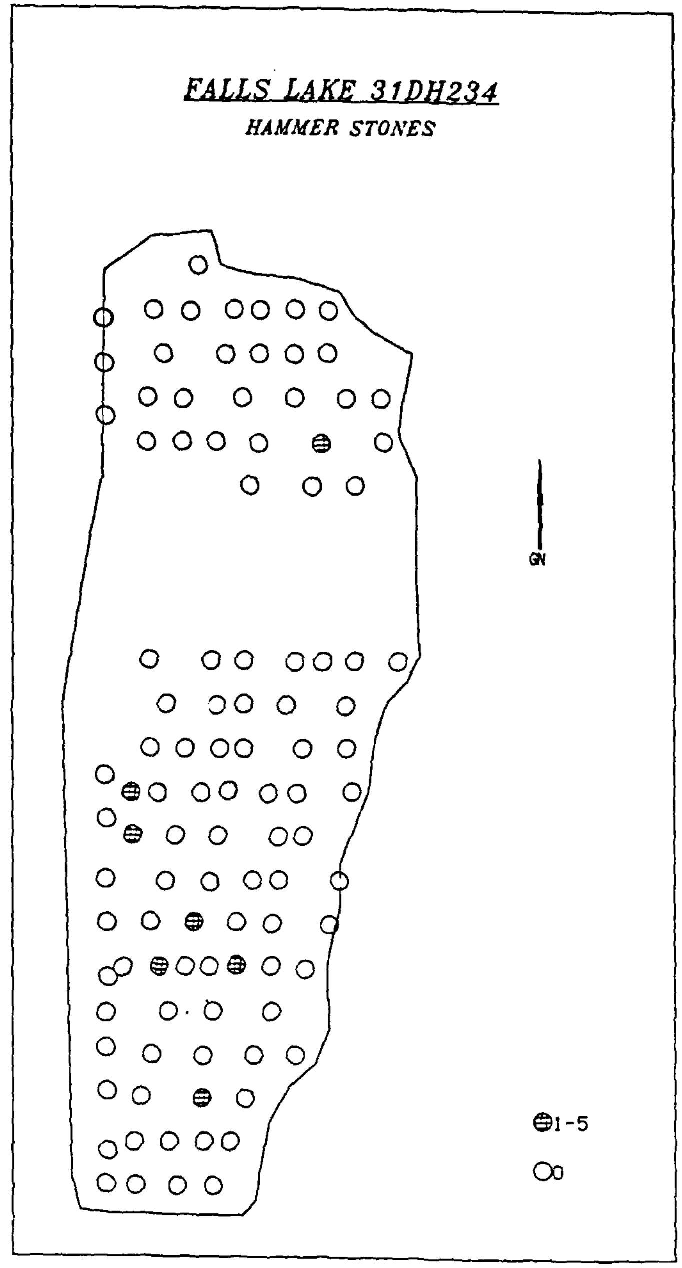


Figure 11. GIMMS surface distribution map depicting hammerstones collected from 31Dh234.

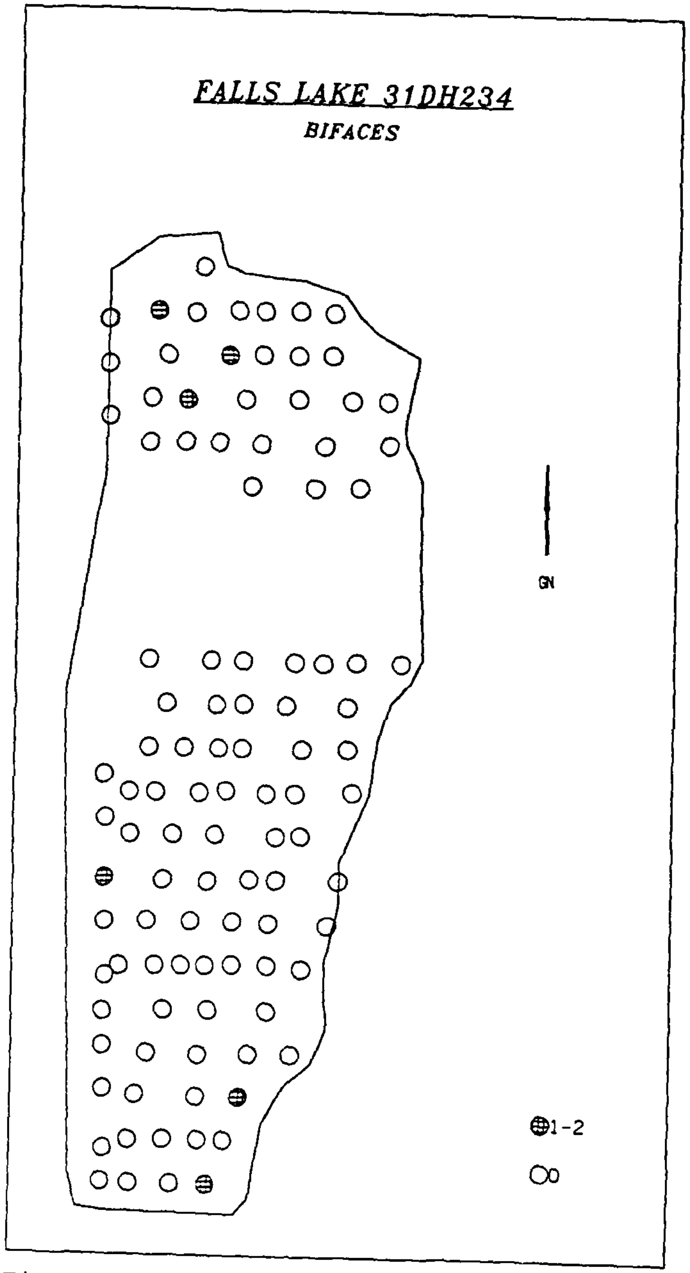


Figure 12. GIMMS surface distribution map depicting total bifaces collected from 31Dh234.

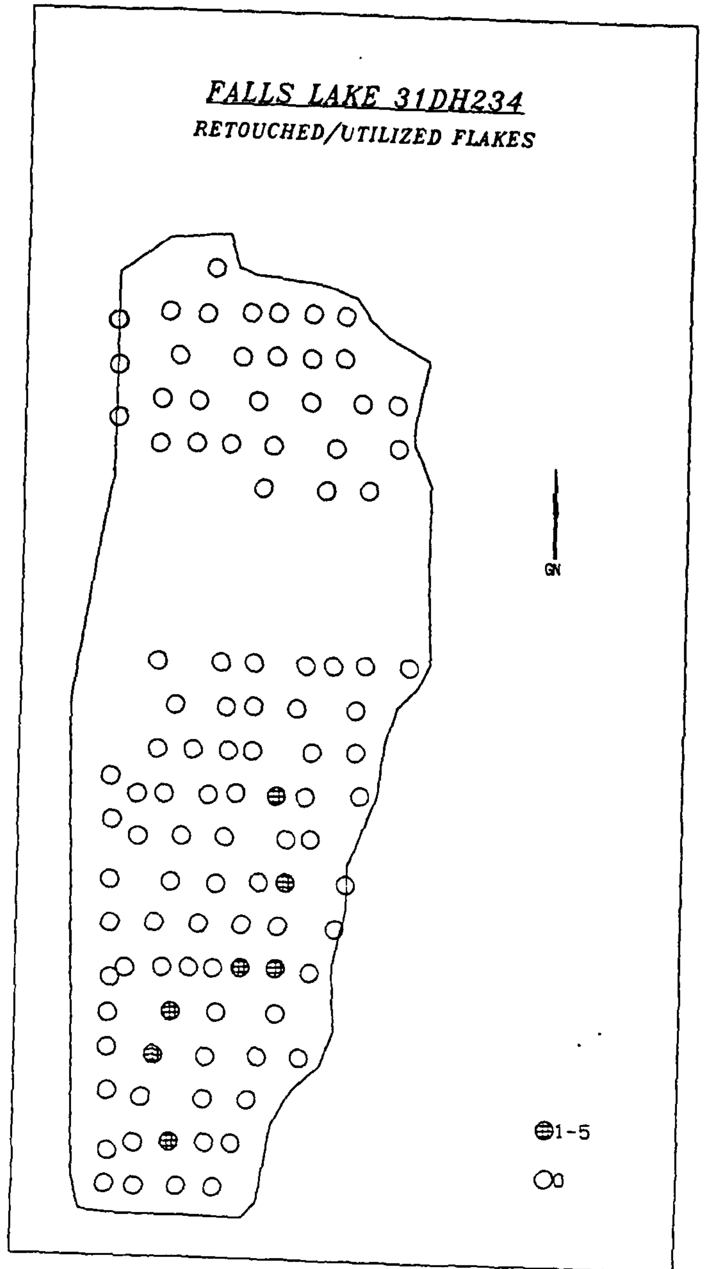


Figure 13. GIMMS surface distribution map depicting retouched/utilized flakes collected from 31Dh234.

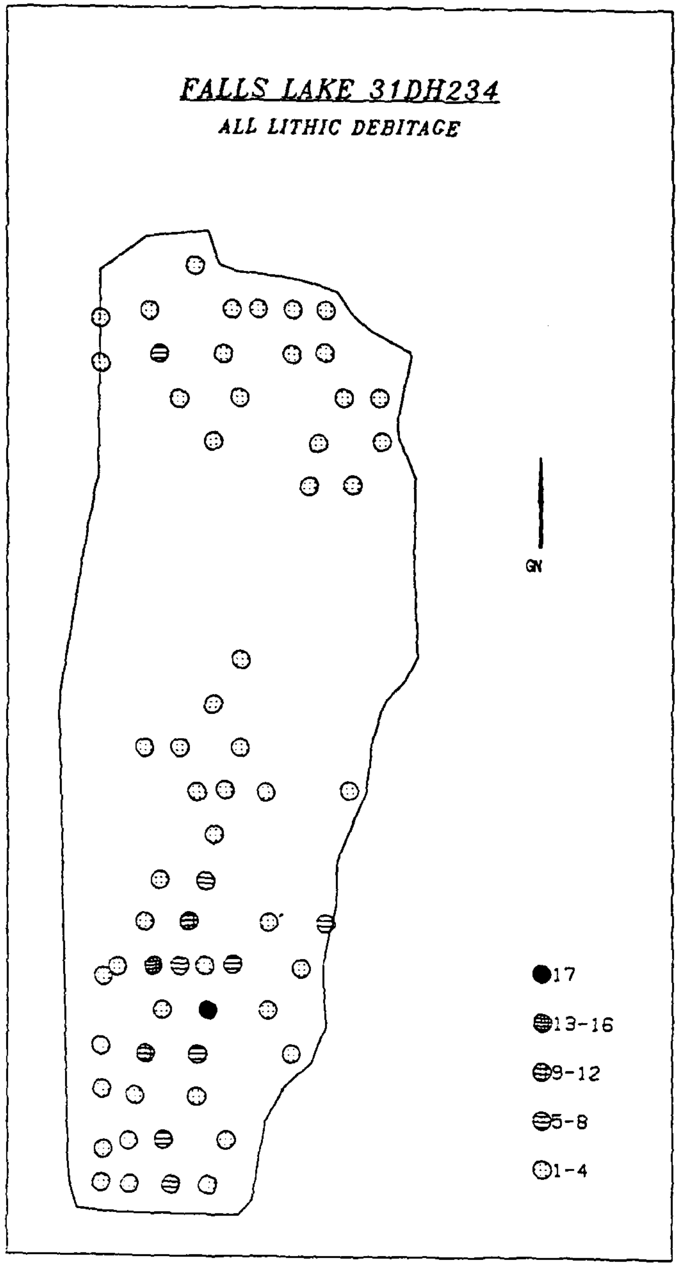


Figure 14. GIMMS surface distribution map depicting total lithic debitage collected from 31Dh234.

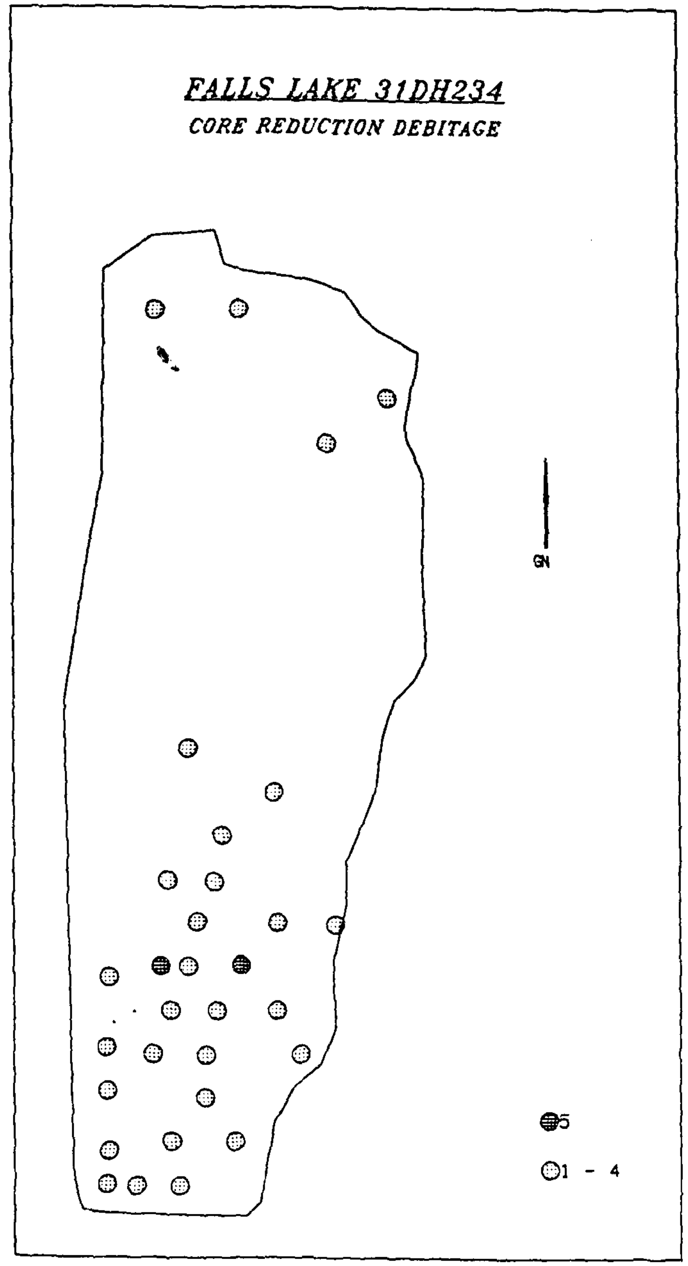


Figure 15. GIMMS surface distribution map depicting core reduction debitage collected from 31Dh234.

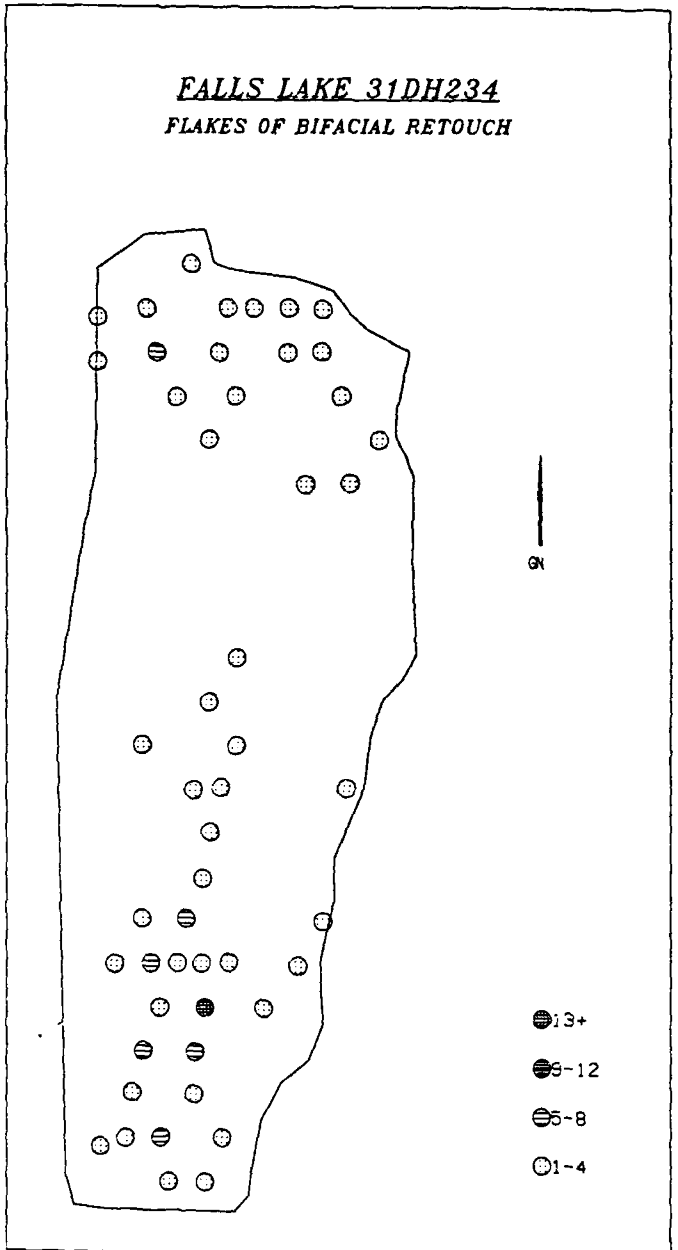


Figure 16. GIMMS surface distribution map depicting biface thinning debitage collected from 31Dh234.

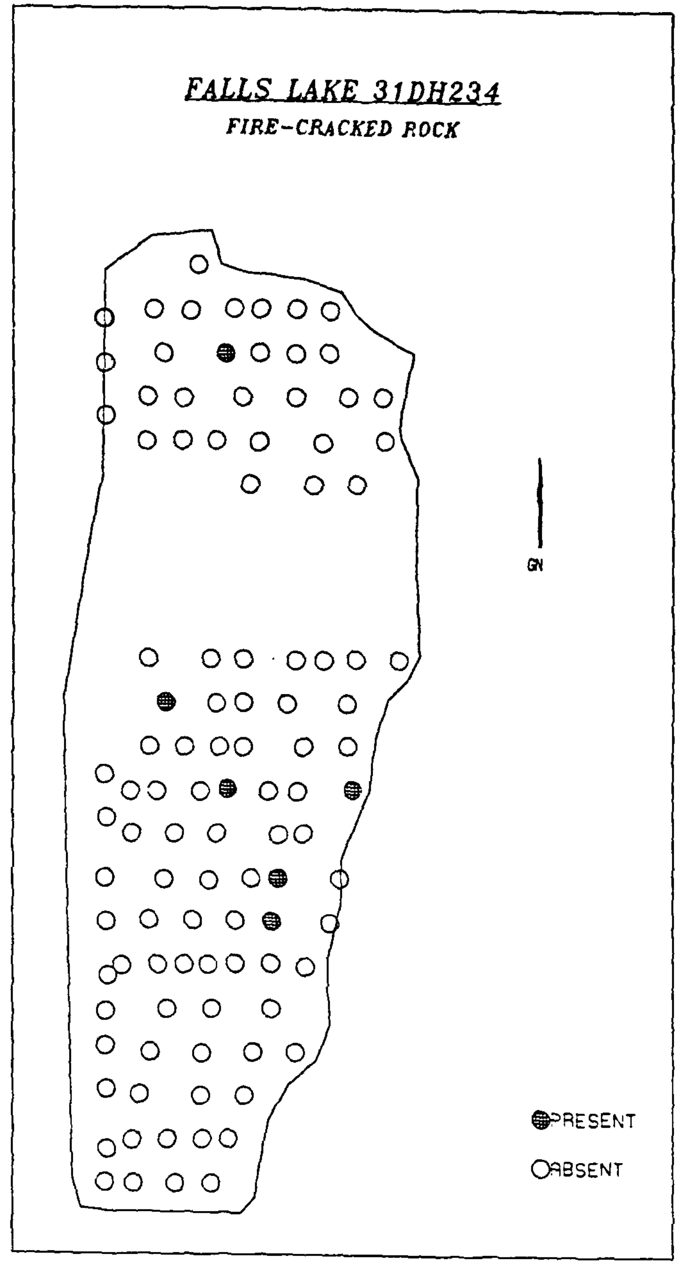


Figure 17. GIMMS surface distribution map depicting fire cracked rock collected from 31Dh234.

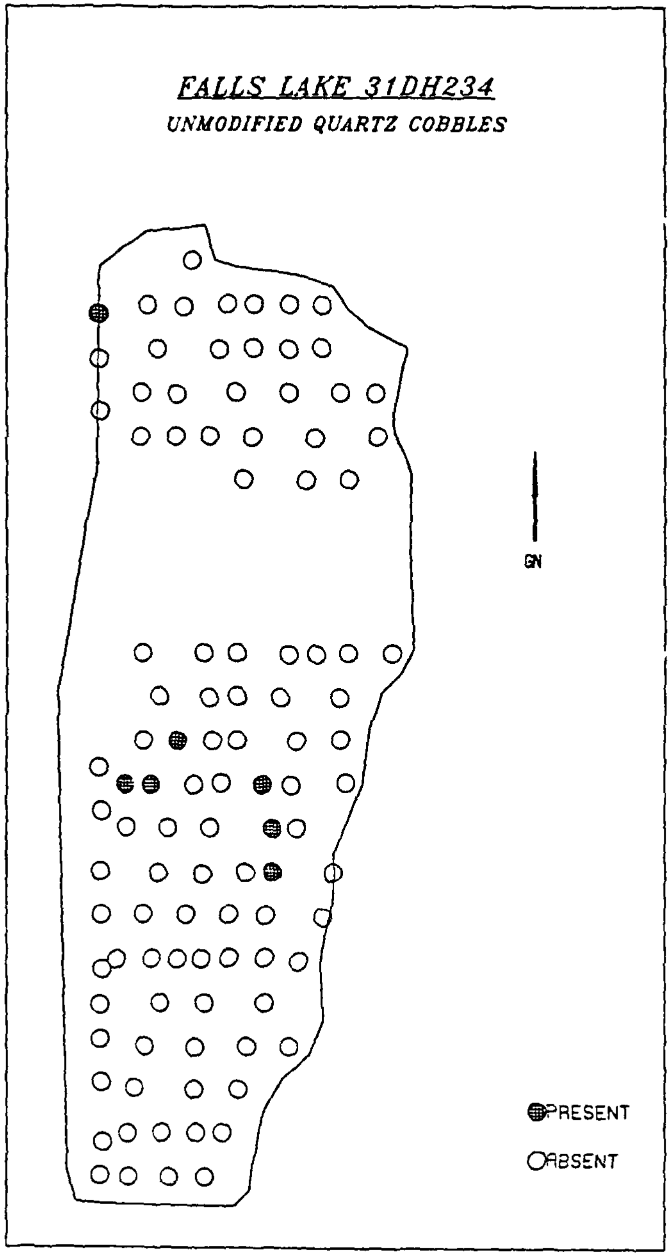


Figure 18. GIMMS surface distribution map depicting unmodified quartz cobbles collected from 31Dh234.

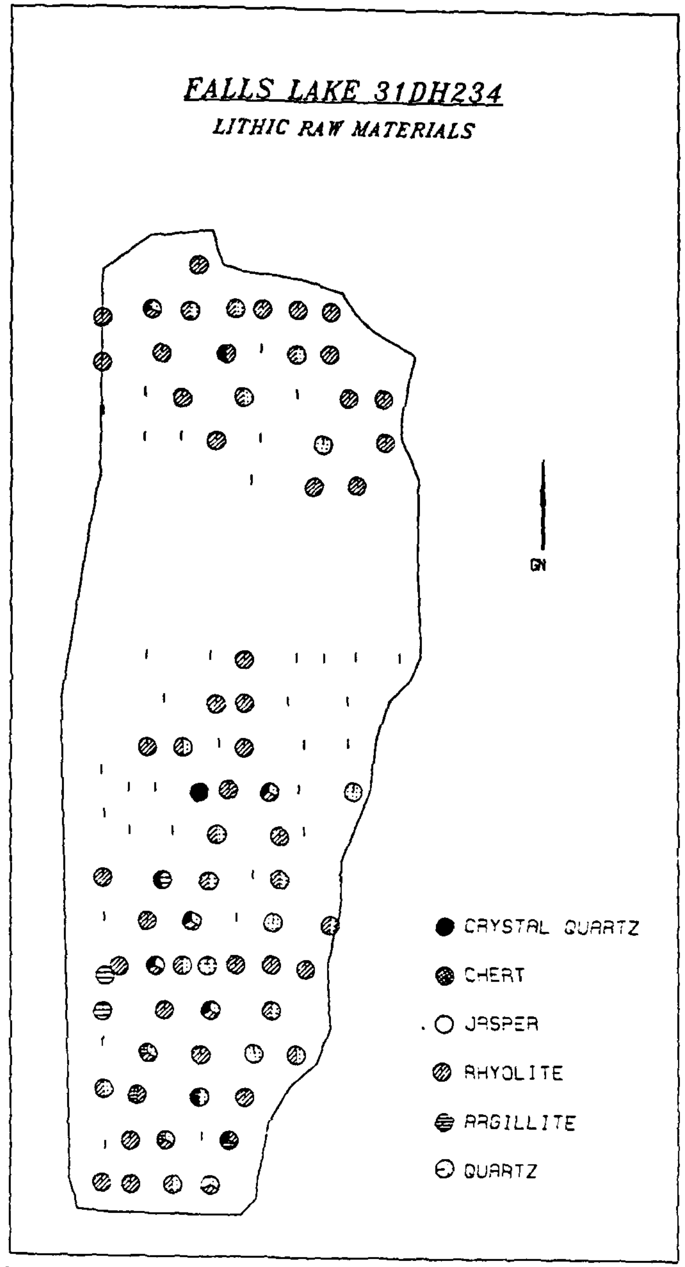


Figure 19. GIMMS surface distribution map depicting lithic raw materials collected from 31Dh234.

occurred ubiquitously throughout the site, with higher frequencies occurring north of the farm road.

Several hypotheses concerning the relationship of surface and subsurface artifact distributions were stated and tested for significance using the chi-square statistic for nominal scale variables (Dixon and Leach 1978). The first hypothesis stated that no relationship exists between surface artifact frequencies and excavated artifact frequencies (null hypothesis); the alternate hypothesis stated that an isomorphic relationship exists between surface artifact frequencies and excavated artifact frequencies.

In order to test this hypothesis, the frequency of all artifacts recovered from the Surface of Excav. Units 4 and 10 was compared with the total frequency of artifacts collected in Level 2 of Excav. Units 4 and 10. With one degree of freedom, alpha level .001, the null hypothesis was rejected and the alternate hypothesis was accepted:

Chi-Square Comparison of Surface and Subsurface (Level 2) Distribution of Artifacts in Test Units 4 and 10, 31Dh234

		Unit 4	Unit 10	Total
Surface	o/(e)	6 (15.78)	19 (9.67)	25
Level 2	o/(e)	311 (299.8)	173 (183.75)	484
Total		317	192	509

Alpha Level = .001, d.f. 1
chi-square = 16.11, p 10.83
Reject Null Hypothesis

A second set of hypotheses was also tested using the chi-square statistic. These hypotheses sought to establish the accuracy of a suspected correlation between surface and subsurface artifact frequency as depth of deposits increases (Redman and Watson 1970; Kirby and Kirby 1970; Lewarch and O'Brien 1981). The null hypothesis stated that no correlation occurs with increased depth, while the alternate hypothesis stated that the correlation between surface and subsurface frequencies decreases. The frequency of all surface artifacts from Excav. Units 4 and 10 was compared with the frequency of artifacts recovered from Levels 2 and 3 of these units. With one degree of freedom, alpha level .001, the null hypothesis was rejected in each case, supporting an inverse depth relationship between surface and subsurface data:

Chi-Square Comparison of Surface and Subsurface (Level 3) Distribution of Artifacts in Test Units 4 and 10, 31Dh234

		Unit 4	Unit 10	Total
Surface	o/(e)	6 (19.4)	19 (5.8)	25
Level 3	o/(e)	123 (112.54)	20 (32.84)	143
Total		129	39	168

Alpha Level = .001, d.f. 1
chi-square = 46.72, p 10.83
Reject Null Hypothesis

The validity of mapped surface distributions for adequately projecting subsurface deposits and artifact dispersion at 31Dh234 was supported by subsequent excavation. The highest concentration of surface artifacts was also the area of highest subsurface artifact concentration (vicinity of Excav. Unit 10). Although testing and block excavations were dispersed across the defined site area in order to eliminate self-fulfilling predictions, other areas of the site produced far fewer artifacts, thereby empirically confirming the largely impressionistic conclusions drawn by previous investigation of the site (Claggett et al. 1978; Hargrove et al. n.d.).

Stage 3

Based on distributional trends suggested by the controlled surface collection at 31Dh234, a testing program was initiated with the establishment of five 2x2 meter excavation units. Site testing was conducted from March 14 - 17, 1988. Each unit was placed either in an area of high or low artifact density, in order to detect temporally or spatially stratified activity areas; or in a potential feature area, such as a hearth or work station, in order to investigate intact activity contexts (see below). Grid datum for each unit was designated as the southwest corner; unit elevation was controlled from the topographically highest corner.

The Plowzone (to 20 cm below surface) of each excavation unit was manually removed as a single provenience and screened through 1/4-inch mesh hardware cloth (mechanical and manual sifters). The sub-plowzone was manually removed in two arbitrary levels: Level 2 was a 10 cm level lying immediately below the Plowzone, and Level 3 was a 10 cm or shallower level between the base of Level 2 and subsoil. Each zone or level was issued a Field Specimen (provenience) number.

Excavation records included plan and profile sketches for each excavation unit. Soil samples were collected from representative landform settings and from sub-plowzone proveniences. Field specimens were logged according to sequential proveniences. An Excavation Level Form was filled out for each removed natural or arbitrary provenience.

All diagnostic artifacts, as well as artifact clusters, were piece plotted, mapped, and photographed in B/W and color, so that vertical patterning could be reconstructed during the analysis phase (Stage 4) of the project. Site views and excavation techniques were also documented using B/W photography.

Three 2x2 meter excavation units (Excav. Unit 1, N10/E5; Excav. Unit 2, N20/E15; Excav. Unit 4, N25/E10) were placed in the southern portion of 31Dh234. Surface mapping suggested that this area of the site represented a primary Archaic period occupation, with secondary Woodland period occupation. Excav. Unit 3 (N45/E5) was placed north of this concentration in an area which, on the basis of surface artifact distributions, appeared to be peripheral to major activity areas. Excav. Unit 5 (N95/E10) was placed in the northern portion of the site in an area which appeared to contain a concentration of Woodland materials (Fig. 20).

<u>Excav. Unit 1</u> - The Plowzone in this unit produced diagnostic Historic, Woodland, and Middle Archaic hafted bifaces and a ceramic assemblage dominated by Dan River series materials; a small amount of Badin-like and Uwharrie ceramics were also present. A diverse assemblage of lithic debitage was also recovered, the majority of which was manufactured of rhyolite. Tools included a metate fragment, drills, awls, perforators, and an axe.

Level 2 produced diagnostic Middle Woodland hafted bifaces and a ceramic assemblage dominated by Yadkin series materials. Level 3 diagnostics included only Middle Archaic hafted bifaces; no ceramics were recovered.

<u>Excav. Unit 2</u> - The Plowzone in this unit produced one diagnostic Woodland hafted biface and one Middle Archaic hafted biface. The ceramic assemblage was dominated by Dan River series materials.

A possible floor remnant was observed at the Plowzone/Level 2 interface. A quantity of large flakes and fire cracked rocks were recovered at this level only. Level 2 yielded no diagnostic hafted bifaces; however, diagnostic potsherds included mostly Dan River series materials. Level 3 diagnostics included only Middle and Late Archaic hafted bifaces; no ceramics were recovered.

<u>Excav. Unit 3</u> - This area produced a marginal number of surface artifacts, which was thought to reflect either a cultural "clean area" or some post-depositional disturbance. Excav. Unit 3 was therefore excavated as a gauge of bias which may have been introduced into the assumed isomorphic relationship between archaeological surfaces and subsurfaces by such disturbances as cultivation, logging, and bioturbation. In this case, it was found that the surface indicators of prehistoric occupation were highly predictive of subsurface content and distribution as well. Under this assumption, subsequent excavation at 31Dh234 concentrated on those areas where either surface artifact density was high or otherwise suggestive of diagnostic activity, or where testing had indicated the presence of features.

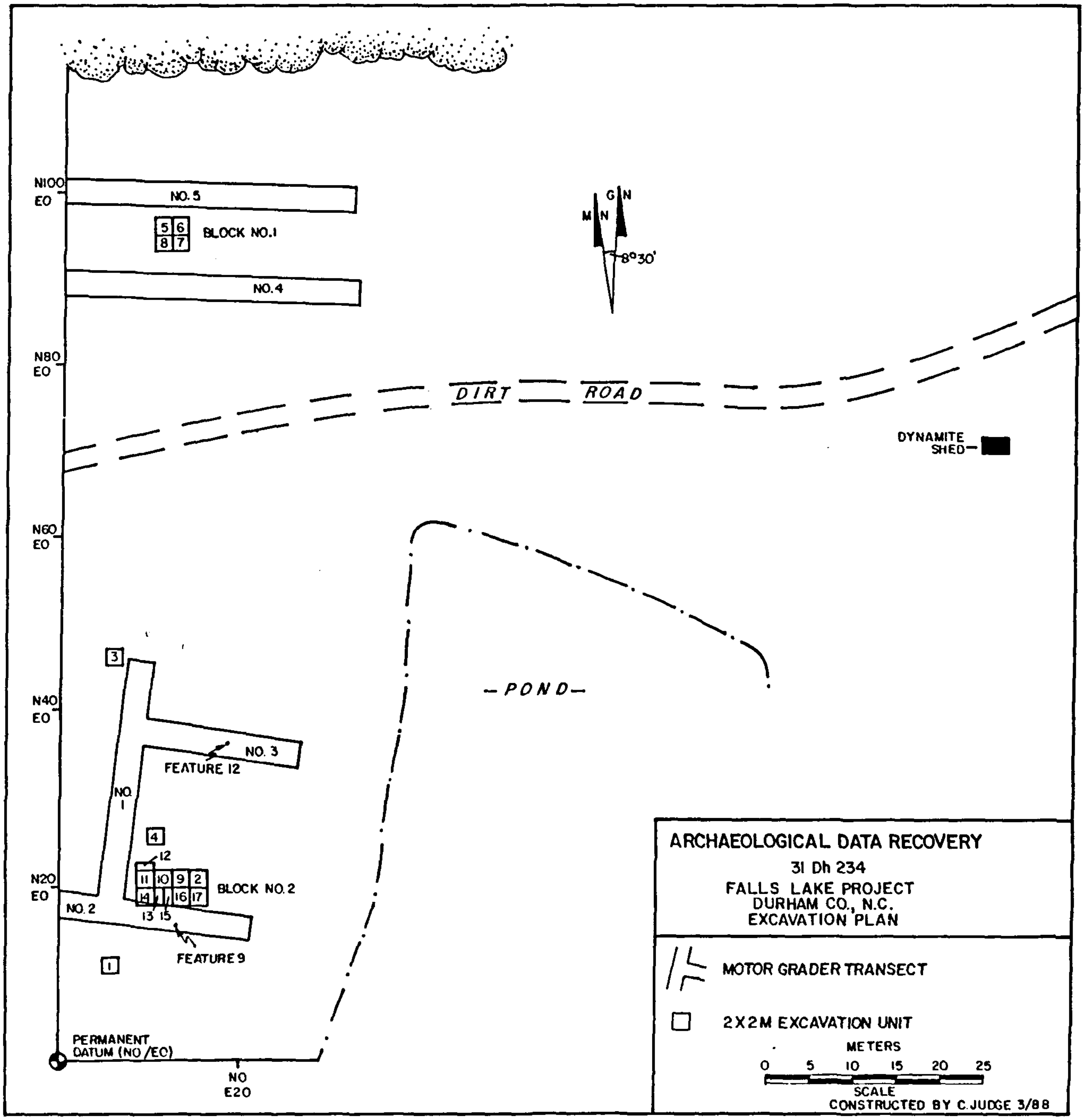


Figure 20. Site excavation plan, 31Dh234.

Excav. Unit 4 - The Plowzone of this unit yielded Middle Archaic and Woodland period diagnostic hafted bifaces, as well as steatite fragments which suggest an additional Late Archaic occupation. The ceramic assemblage was dominated by Dan River series materials. Level 2 yielded one Big Sandy hafted biface, a Morrow Mountain II biface, and a small Woodland triangular biface. The ceramic assemblage was dominated by sherds of the Dan River series. Level 3 diagnostics included a Paleo-Indian (Hardaway) preform and a Middle Archaic (Morrow Mountain) hafted biface; no ceramics were recovered.

Excav. Unit 5 - This extreme northwest area of the site reflected predominantly Woodland occupation. This area was separated from the Archaic portion of the site by a dirt farm road which connects the Flat River floodplain with SR 1630. Excav. Unit 5 produced a rather interesting ground stone atlatl handle (Joffre Coe, personal communication 1988) from the interface of the Plowzone and Level 2 (21 cm). This excavation unit was expanded to a 4x4 meter block in order to detect a stratigraphic context/assemblage (possible burial, specialized tool kit, or cache) and temporal association for this isolated artifact. However, severe natural and post-depositional disturbance (several tree features and possible dynamite blasting of a tree stump) in this immediate area prevented such association.

Based on the lack of organic cultural features revealed by manual testing, a field decision was made to strip the plowzone from larger areas of the site using a motor grader. The objective of the motor grader operations was simply to remove the plowzone overburden in order to quickly and effectively expose sub-plowzone levels where undisturbed features would be easily visible and accessible. Since the purpose of archaeological mitigation at 31Dh234 was controlled physical destruction of the site to preserve its significant material content and spatial contexts, a sustained and systematic search of its sub-plowzone strata was the next logical step -- after controlled surface sampling and preliminary site testing -- in documenting the site's research potential. Mechanical plowzone removal therefore was a way of searching for sealed, intact features, and a bias check on the predictive utility of surface data from a site displaying low artifact density.

Five motor grader transects at 31Dh234 were closely monitored on March 16, 1988 by a member of the field crew who checked the depth of blade cuts and suspended grading when possible cultural features were encountered. Transect dimensions were as follows: Transect #1 - 3x27.5 meters; Transect #2 - 3x23 meters; Transect #3 - 3x17 meters; Transect #4 - 3x29 meters; Transect #5 - 3x28 meters (Fig. 20). Mechanical removal of the Plowzone revealed two cultural features (Feas. 9 and 12) and a number of natural features. All exposed features were shovel-shaved and identified (Fig. 21) and later excavated to their bases.

The remainder of Stage 3 fieldwork (March 21 - 29, 1988) was devoted to block excavation, following indications of features and/or stratigraphic integrity revealed through either test unit excavation or mechanical removal of plowzone. A total of 14- 2x2 meter units and 3- 2x1 meter units (62 square meters) was excavated at 31Dh234, including test units and block excavations (Figs. 22, 23). Block excavations were manually accomplished through flat shovelling and trowelling. All excavated soil

Figure 21. View of field crew cleaning motor grader transect, looking north.

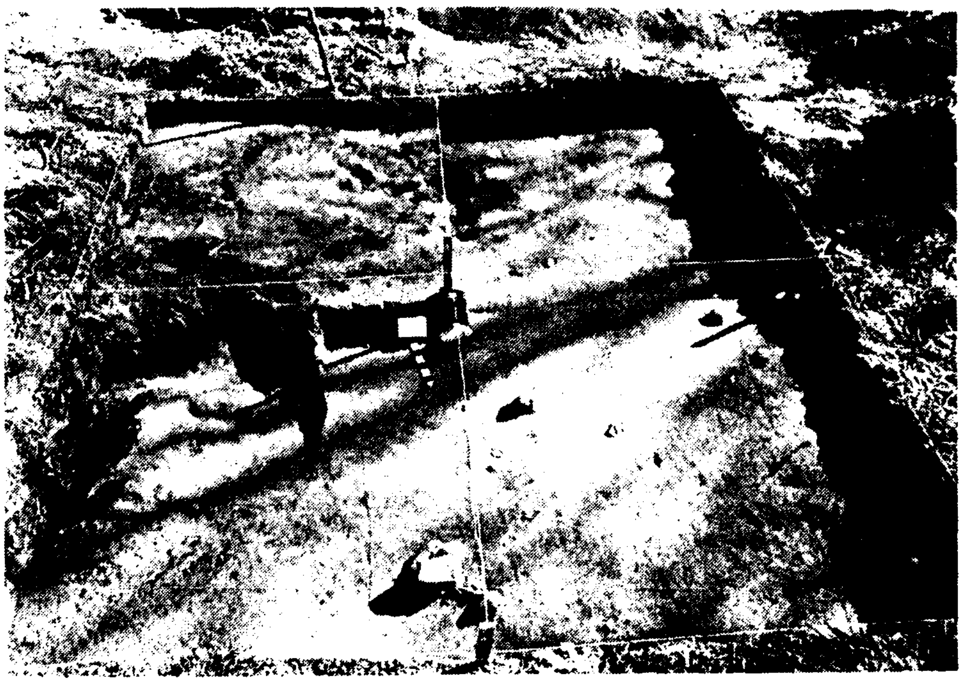


Figure 22. View of completed Block #1 excavation, looking south.

Figure 23. View of Block #2 excavation in progress, looking east.

was screened through 1/4-inch mesh hardware cloth sifters (mechanical and manual screens).

Block Excavations

Block #1 began as Excav. Unit 5 (N95/E10). This unit was installed to investigate a surface concentration of prehistoric artifacts which appeared to be dominated by Woodland hafted bifaces. The discovery of a ground stone atlatl handle at the Plowzone/Level 2 interface, combined with the surface artifact concentration, suggested that activity area features or stratified deposits may exist within Level 2. Although none were exposed during excavation of the 4x4 meter block, two natural features (Feas. 6 and 7) were found to have extensively disturbed the integrity of the entire excavation area. Profiles in Block #1 reflected 21 cm sandy loam Plowzone overlying 11 cm sandy loam (Level 2). Excavations extended 5 cm into subsoil clay (Fig. 24).

Block #2 began as Excav. Unit 2 (N10/E15). A possible floor remnant, consisting of large lithic flakes and fire cracked rock, was observed at the Plowzone/Level 2 interface. The test unit was expanded south by 2 meters and west by 6 meters. Although this activity area appears to be isolated to Excav. Unit 2, Guilford bifaces were encountered in Unit 11, Level 2 (Fig. 25) which appeared to be <u>in situ</u> deposits. Heavier artifact concentrations were recovered from Units 9, 10, and 11. Soil profiles for Block #2 exhibited an average of 18 cm sandy loam Plowzone overlying 12 cm sandy loam (Level 2). Excavations extended 5 cm into subsoil clay (Fig. 26).

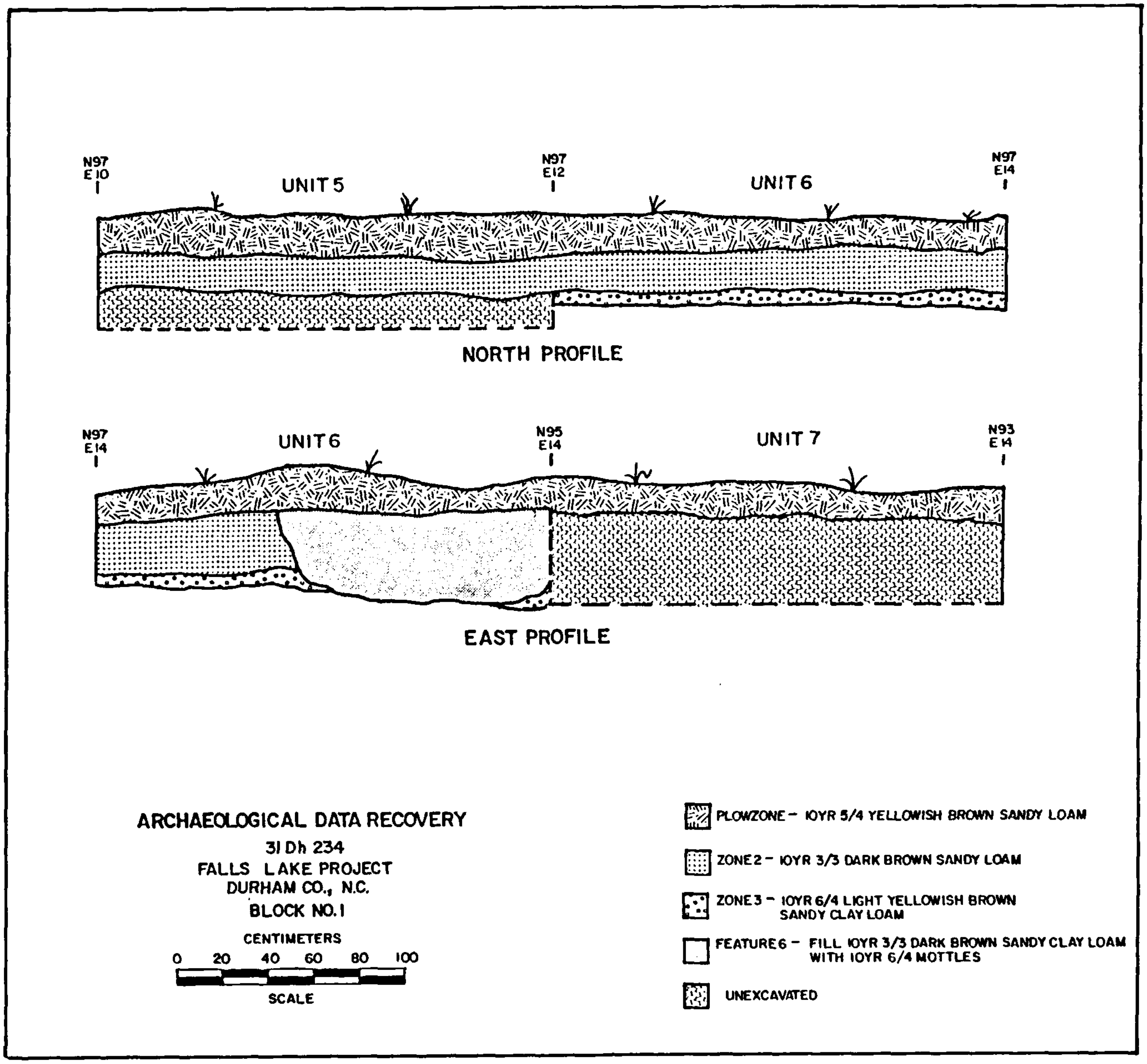


Figure 24. Soil profile of Block #1, 31Dh234.

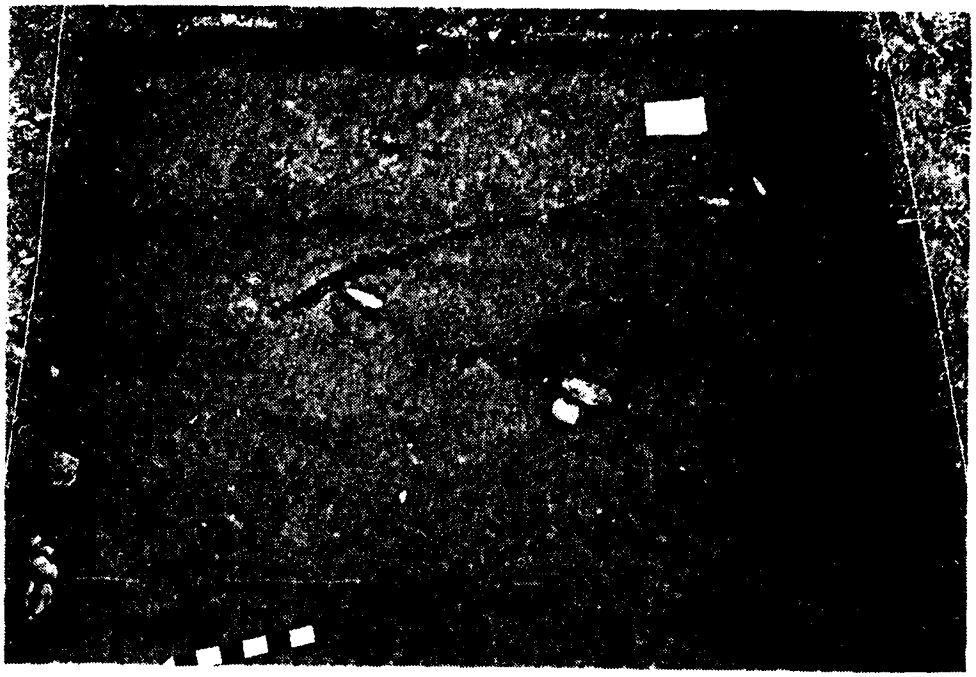


Figure 25. View of Unit 11, Level 2, looking east.

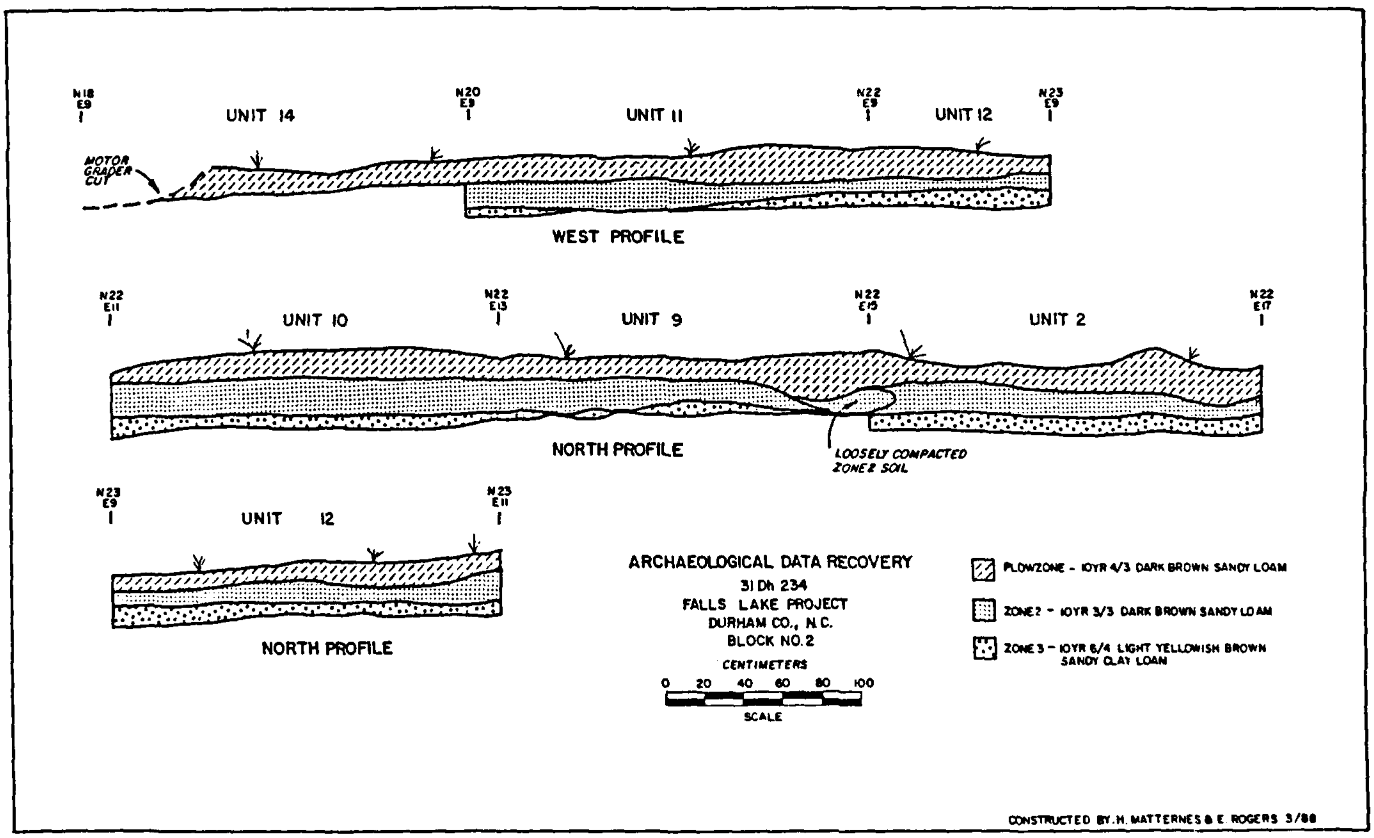


Figure 26. Soil profile of Block #2, 31Dh234.

Features

A total of fourteen features were encountered during data recovery operations at 31Dh234 (Table 2); nine of these proved to be tree root stains or stump holes. Two (Feas. 1 and 2) are modern features (possible tire treads from heavy mechanized equipment), and one (Fea. 5) appears to be a backfilled test unit associated with previous archaeological investigation of the site. The absence of organic features at 31Dh234 is probably attributable to one of two different phenomena. The first is associated with the context and physical setting of aboriginal occupation itself, in that 31Dh234 appears to have functioned as an ephemeral, or seasonal, procurement base camp. Occupied periodically for short time spans, such sites do not normally contain permanent features, such as shelters, dwellings, or storage pits, and would therefore fail to reflect their archaeological correlates (e.g., postholes, house hearths, pits, or burials)(see Hypothesis #4 above).

The second explanation for lack of organic features at 31Dh234 is associated with local soil character and drainage patterns. The strongly acidic nature of White Store series soils, together with a thick clay substrate which reduces porosity, normally causes the organic matter in cultural features to leach out and decay rapidly.

TABLE 2

Excavated Features Recorded at 31Dh234

Feature #	Excavation Unit/Grader Transect #	Origin
1	Unit 2	Unknown (modern)
2	Unit 2	Unknown (modern)
3	Unit 1	Tree
4	Transect #3	Tree
5	Unit 4	ARC Test Unit
6	Units 6, 7	Tree
7	Units 7, 8	Tree
8	Unit 11	Tree
9	Transect #2	Hearth
10	Transect #1	Tree
11	Transect #1	Tree
12	Transect #3	Prehistoric
13	Transect #4	Tree
14	Transect #2	Tree

The two cultural features investigated at 31Dh234 are described below:

Feature 9 (Figs. 27 - 30)

This non-temporally diagnostic feature was exposed at the base of the Plowzone (20 cm below ground surface) in graded Transect #2. It

Figure 27. View of Fea. 9, Level 1, looking west.

Figure 28. View of Fea. 9, Level 2, looking south.

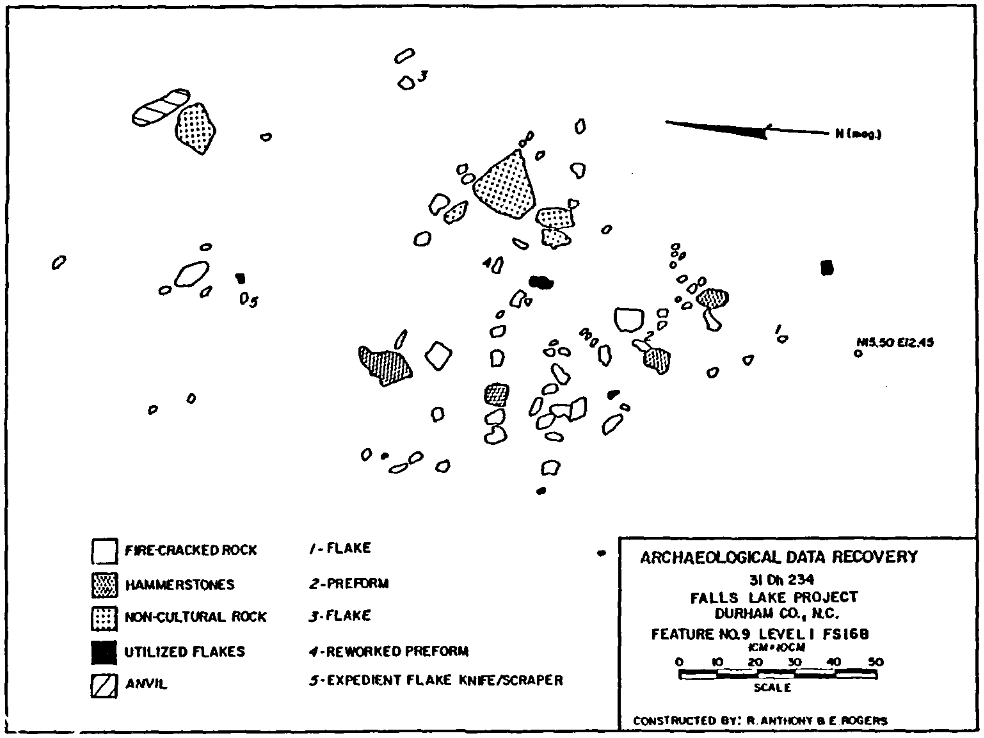


Figure 29. Planview of Fea. 9, Level 1.

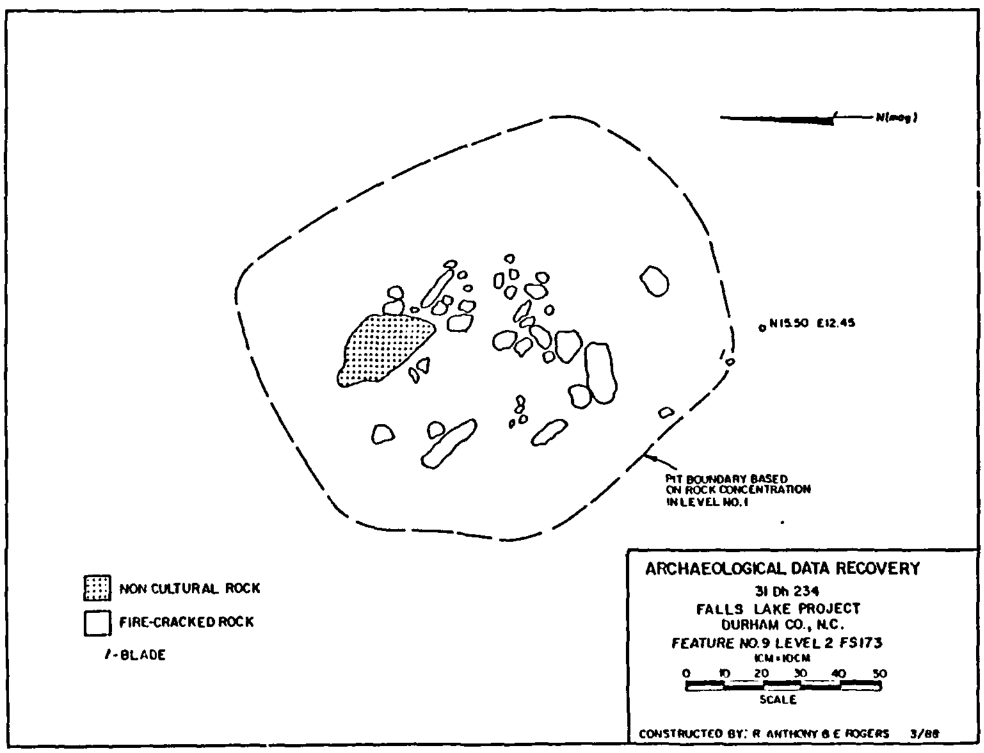


Figure 30. Planview of Fea. 9, Level 2.

described a roughly oval-shaped area of clustered fire cracked rock, lithics, and large, unmodified rocks. This artifact concentration was carefully cleaned by hand, photographed, and drawn to scale at the base of the Plowzone. All observed specimens were numbered and bagged separately. The feature was then manually excavated to a depth of 10 cm, which exposed an untyped blade with a thinned base, associated with a tight, circular concentration fire cracked rock. Although no organic remains were visible on or recovered from this feature, and no evidence of burning, such as charcoal flecks, soil discoloration, or fired clay matrix, was encountered, Fea. 9 is interpreted as a hearth on the basis of cultural material associated with tightly concentrated fire cracked rock. The strongly acidic makeup of White Store soils (Kirby 1976:15-16) and local drainage character are thought to be the major factors contributing to the absence of organic material over thousands of years. The bottom of Fea. 9 was encountered at a depth of 10 cm below base of Plowzone.

Feature 12 (Fig. 31)

This feature was exposed at the base of the Plowzone (22 cm below surface) in graded Transect #3. It was initially defined by the occurrence of a large metate-like rock. The additional discovery of a mano at 11 cm below base of Plowzone suggests that this feature probably represents a food and/or pigment processing area. The bottom of Fea. 12 was encountered at a depth of 16 cm below base of the Plowzone. A few very small fragments of possible hickory nutshell and fire cracked rock may be associated with this disturbed feature, indicating that it may have been a locus of food processing and/or preparation.

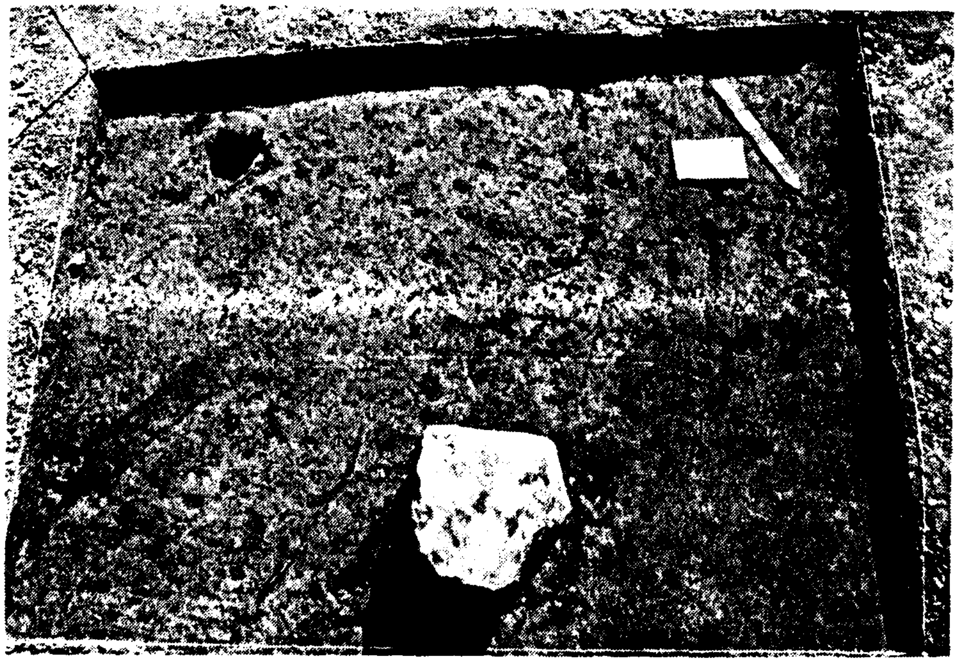


Figure 31. View of Fea. 12, looking south.

An array of 254 Archaic and Woodland period artifacts was recovered from Fea. 12, including an Early Archaic Kirk hafted biface and several fabric impressed potsherds. The integrity of Fea. 12 had been compromised by post-depositional disturbance, and the resulting vertical mixing of artifacts hinders clear temporal assignment or functional interpretation of this feature.

4.4 Analysis, Curation, and Site Documentation

Artifact sorting, processing, cleaning, and cataloging was conducted at CAS's Columbia laboratory. After washing and cataloging, all field specimens were placed in 4-mil polyethylene bags and stored in clean cardboard boxes for temporary storage until completion of the analysis. Except for fire-cracked rock, which was deaccessioned with permission of COE-W, permanent curation of all materials, along with copies of artifact catalogs and other inventory data, was arranged with the N. C. Office of State Archaeology.

Analysis of prehistoric lithic and ceramic artifacts focused on specimen identification according to typological, temporal, and functional criteria (Appendix C). Lithic artifacts were described and analyzed according to raw material, presence/absence of cortical material, classification of manufacture product, inference of tool type and general use context(s). Ceramic artifacts were described and analyzed according to characteristics of paste (clay), temper/clastic inclusions, and surface treatment/finish. Historic artifacts were assigned typological, temporal, and functional classifications according to standard descriptive and analytical sources.

5.0 LITHIC ANALYSIS

5.1 Overview

The methods of lithic analysis were designed to facilitate investigation of the hypotheses posed for data recovery at 31Dh234. Attention focused on (1) patterns of raw material procurement and preference, and (2) identification of lithic artifact functions and use. From the lithic data analyses, inferences are made regarding assemblages, lithic technology, and interpreting general site function and chronology.

Prior to analysis, all artifacts were washed and cataloged. Specimens were sorted according to lithic raw material and cataloged by provenience and artifact type. Lithic tool categories and lithic raw material types are discussed in the following sections.

5.2 Artifact Types

Lithic tool types represented in the 31Dh234 assemblage are defined after the type definitions used by Coe (1964), House (1975:55-73), and Tippitt and Daniel (1987). This typology is based on the hypothesis that correlates exist between certain observable physical attributes of artifacts and specific kinds of human behavior (House 1975:55). Major categories are flaked stone tools, ground stone tools, flake and pebble tools, debitage, and fire cracked rock.

Flaked Stone Tools

HAFTED BIFACES are generally well made, symmetrical, pointed bifaces on which the proximal end has been modified for hafting. This category includes projectile points and a number of specialized tools such as knives and drills. Projectile points diagnostic of prehistoric phases are identified by type name. Attributes recorded include lithic raw material, provenience, metric measurements, and breakage patterns.

BIFACES exhibit flake removal scars on both faces and have regular, finished edges, but are not projectile points or preforms. In the present analysis, this category includes finished tools and portions of broken hafted bifaces which cannot be further identified.

PREFORMS, also called **BLANKS**, are bifaces which lack even, carefully retouched edges and are usually comparatively thick and asymmetrical. Preforms may be unfinished hafted bifaces or bifacial tools broken or discarded during manufacture.

UNIFACES are flake tools with regular steep marginal retouch, producing a working edge of a desired shape and angle. Unifacial scrapers are further subdivided morphologically into end and side scrapers, some of which are temporally diagnostic (Coe 1964; Daniel 1986). Attributes of unifacial scrapers noted were lithic raw material, metric measurements, morphological type, and edge angle, a characteristic often linked to tool function (Wilmsen 1970).

DRILLS consist of a thin, rod-like projection with or without an expanded base, and have a thick, biconvex or diamond shaped cross

section, often produced by alternate flaking. Use wear tends to be rotary.

AXES are large, roughly chipped stone tools with bifacially flaked working edges transverse to the long axis of the tool. Notches for hafting distinguish axes from celts, which are also hafted but unnotched. This category of tool may be flaked or ground.

CHOPPERS are heavy-duty tools with an angular working face. Usually the rough bifacial or unifacial flaking used to produce the working edge results in minor alteration to the natural shape of the stone.

Other Stone Tools

HAMMERSTONES are cobbles or cobble fragments with battered and pitted areas. Specimens of very hard materials were probably used for percussion knapping and those of softer materials may have been used in other tasks such as crushing bone.

ABRADERS consist of relatively hard, abrasive stones which exhibit ground, grooved, or striated surfaces. This presumably is a result of contact with other hard materials such as stone or bone.

MANOS are hand-held cobbles or cobble fragments with one or more flat surfaces produced by grinding and abrasion, presumably during food preparation.

METATES are large, heavy stones exhibiting smoothed or ground and flattened surfaces resulting from food processing.

ANVILS or **NUTTING STONES** are cobbles or large stones with one or more pitted, crushed, or slightly concave areas.

Flake and Pebble Tools

RETOUCHED FLAKES are flakes with regular marginal retouch which produces flake scars averaging more than 2 mm long. This category is distinct from flakes exhibiting steep marginal retouch, or unifaces.

UTILIZED FLAKES exhibit flake scars less than 2 mm long. This is interpreted as functional edge damage resulting from use of the flake as a tool in modifying hard materials such as bone or dry wood (House and Wogaman 1978:60).

GRAVERS are tools with intentional retouch that results in a small, triangular-shaped projection. The retouch on PERFORATORS results in a converging point that is larger than that of a graver. Unifacial retouch is more common, but bifacial retouch may be used.

SPOKESHAVES are flakes with steep unifacial retouch forming a working edge, which is markedly concave and may be considered suitable for scraping or shaving narrow, convex surfaces.

BURINS have chisel-like working tips produced by removing the edges of a flake or biface parallel or obliquely to its long axis. Burins are

thought to have been used for engraving or grooving hard materials.

DENTICULATES exhibit regularly spaced, fine retouch resulting in a series of serrations along the working edge.

BLADES are flakes with parallel lateral edges and a length at least twice that of the width. Blades often exhibit scars on the dorsal face from removal of previous blades.

SPLIT PEBBLE tools are created by halving, quartering, or removing slices from quartz pebbles or small cobbles. Unmodified pebble segments were used, as well as being modified into several types of expedient tools. While some debitage suggested the use of bipolar techniques, other flakes were removed by free-hand percussion (Albert C. Goodyear, personal communication 1988).

Debitage

CORES are masses of material that exhibit flake scars on more than one face, but lack prepared tool edges and edge damage indicative of use as a tool. Cores may have been used to derive flakes for tools, or may represent the initial stage of biface core reduction, or both.

CHUNKS or **SHATTER** are angular pieces of debitage variable in size. They are distinguishable from flakes in that they lack observable striking platforms and other flake characteristics; and lack the scars of detached flakes which are characteristic of cores. Chunks are considered to have been produced in greatest quantity in the earliest stages of biface reduction.

PRIMARY FLAKES are flakes exhibiting cortex on the dorsal face, or are thick, angular flakes removed during the initial stages of tool manufacture.

BIFACE THINNING/REDUCTION FLAKES are relatively flat, often triangular in cross section, and have an apparent platform or bulb of percussion. These flakes have broad, shallow flake scars on the dorsal face (from detachment of previous thinning flakes), and tend to exhibit feathered edges on the margins. Thinning flakes are also known as **SECONDARY FLAKES**; similar, but smaller, **TERTIARY FLAKES** are believed to be removed as a result of tool resharpening, and often retain a portion of the edge of the biface from which they were removed.

OTHER FLAKES designate a residual category for debitage that exhibits recognizeable flake morphology, but does not correspond to the previous definitions of thinning or primary flakes. These specimens represent a reduction stage intermediate between the stages represented by chunks and biface thinning flakes.

Fire Cracked Rock

This category consists of rock fragments showing signs of having been broken by exposure to heat. Identifying characteristics include jagged and irregular or pot-lid fractures; discoloration (generally red or black); and lack of striking platform or bulb of percussion.

5.3 Lithic Raw Materials

Documentation of lithic raw material procurement and use patterns at a site are a prerequisite to understanding and interpreting both technological and settlement-subsistence systems. Availability is one factor in resource use, and the ratio of local vs. non-local materials has been correlated with mobility (Goodyear 1979) and with collecting (logistical) or foraging (mobile) settlement-subsistence strategies (Binford 1979; Claggett and Cable 1982). Temporal preferences for specific raw material types have also been demonstrated (Goodyear et al. 1979; Blanton et al. 1986:111; Canouts and Goodyear 1985; Tippitt and Marquardt 1984: Figs. 7-28, 7-52).

The Carolina Slate Belt, a 45-85 km wide belt of metavolcanics interspersed with intrusives and sedimentary materials, crosses the Carolina piedmont from southwest to northeast. Generally volcanic in origin, the Slate Belt consists of metamorphosed lava flows interbedded with beds of ash, tuff, breccia, and shale or slate, along with non-volcanic materials. Composition of the rock varies from fine-textured tuffs and flows to coarse-grained mafic volcanics; these various materials do not occupy definite stratigraphic positions in the formation (Stuckey 1965:94-97). In addition to the high diversity of rock, its composition is determined by the rate and conditions of the cooling process (Claggett and Cable 1982:185).

More than a dozen specific raw material types were used in the manufacture of stone tools at 31Dh234. Carolina Slate Belt materials available to the occupants of this site exhibit great variability in color and texture, matched by an equal diversity in nomenclature found in the literature (Claggett and Cable 1982: Appendix 4; Woodall 1984; Hargrove et al. n.d.).

Raw material definitions used in this analysis are described below. These descriptions are based on macroscopic inspection of physical properties, previous studies (Stuckey 1965; Novick 1978), and consultation with Keith Derting, a specialist in geological materials found at archaeological sites (S. C. Institute of Archaeology and Anthropology).

QUARTZ is abundant throughout the piedmont, occurring in veins in Carolina Slate Belt rocks, or as cobbles. Vein quartz from upland sources is generally white or gray, while river cobbles are often yellow or brown due to minerals absorbed from the water.

CRYSTAL QUARTZ is typically hexagonal, transparent, and has a conchoidal fracture. The glassy texture of this material made it one of the cryptocrystallines preferred by Paleo-Indian tool makers (Goodyear 1979).

QUARTZITES are formed by sedimentary processes from detrital sand grains or from the metamorphosis of quartz sandstones, cherts, or sub-graywacke. Texture varies widely; the smaller the grain size, the more uniform the rock, and the better its knapping characteristics (Novick 1978). Orthoquartzite consists of at least 90% quartz sand grains

cemented together by silica.

RHYOLITE is a fine grained, cryptocrystalline which commonly occurs in Carolina Slate Belt formations, and is an excellent material for knapping. Plain rhyolite is dark green to black when freshly broken, and weathers to a light gray or buff color. Flow-banded rhyolite is characterized by a series of thin buff and gray to green bands; and porphyritic rhyolite contains phenocrysts of quartz, felspar, and/or plagioclase (Novick 1978).

ARGILLITE is light green in color and is one of the major constituents of the Carolina Slate Belt. Formed by the deposition of feldspar and alumino-silicates that weather to clays, argillites range in texture from soft and chalky to extremely hard, cryptocrystalline forms. In this analysis, the term "argillite" is applied to the former type, and the fine grained, silicious argillites are included with "rhyolites." Argillites lack the flat cleavage characteristic of "slates" (Novick 1978:431). Slate found at 31Dh234 is black in color. Debitage occurs in the form of thin plates, but the one polished slate object from the site exhibits a homogeneous, compact texture.

JASPER is cryptocrystalline (fine-grained and hard) quartz that is opaque and red, yellow, brown, or grayish in color. It is common, but not abundant, in volcanic rocks of the Carolina Slate Belt. Jasper is found in Granville County (Stuckey 1965:478) and in Stokes County in an area around Sauratown (Woodall 1984:83).

CHERT is a cryptocrystalline rock, defined as a "compact, silicious rock formed of chalcedonic or opaline silica, one or both, and of organic or precipitated origin" (American Geological Institute 1962:82). In this analysis, piedmont silicates and tuffs are also included in the general designation "chert."

Several types of chert are represented at 31Dh234. Piedmont chert is an opaque, gray, fine grained, silicious material which exhibits fissures and inclusions (House and Wogaman 1978:56). Allendale chert from quarries along the lower Savannah River is translucent yellow to cream or dull white, and has a chalky, fossiliferous cortex (Goodyear and Charles 1984). Opaque and translucent black, gray, and blue cherts originate in the Ridge and Valley province of Tennessee and Virginia. They are present at 31Dh234 and have also been reported from the Donnaha site on the Yadkin River, west of the study area (Woodall 1984:83).

BASALT is a black, fine grained volcanic rock consisting predominantly of plagioclase and pyroxene. Basalt lacks the flow structures often observed in rhyolite. The higher amounts of iron in basalt result in rapid weathering, which produces a cortex that is typically light gray in color.

FELSITE is a dense, igneous rock consisting almost entirely of feldspar and quartz.

SCHISTS are highly metamorphosed rocks which break in a wavy, uneven surface and are named for their most characteristic mineral. Micaceous schist is usually a highly metamorphosed shale composed mainly of many

small flakes of mica (with a roughly parallel orientation) and quartz. The texture may vary from fine to coarse.

SOAPSTONE is a soft rock containing 10% - 80% talc and other minerals such as chlorite, serpentine, or magnesite. It is a massive, impure, talcy rock. Steatite is a compact, massive type of very pure talc (Stuckey 1965:455). In the piedmont, soapstone occurs as small, isolated outcrops, several of which are located in Wake (Wilson and McKenzie 1978:45) and Forsyth (Woodall 1984:8) Counties.

HEMATITE is an iron ore, often in the form of a red, earthy powder. **LIMONITE**, or yellow ochre, is a similar ore, also having a high iron content. Both of these materials were used by Native Americans as sources of pigment.

METAVOLCANIC includes several varieties of metamorphic or metavolcanic rocks which do not fall into any of the previously defined categories, or specimens too small to identify on a more specific level.

5.4 Assemblage Analysis

A total of 11,081 lithic specimens were recovered from 31Dh234. The flaked stone category included 155 hafted bifaces, 69 preforms, 162 other bifaces and formal tools, 50 unifaces, and 319 expedient flake tools. The unflaked tool category included 70 cobble tools (hammerstones, manos and metates); and 35 ground and polished stone items, such as celts, axes, and atlatl handle. Data recovery yielded 10,221 items of debitage, and 87.3 kg of fire cracked rock (Table 3).

In the following section, each of these categories and artifact classes is described by catalog number and discussed in terms of the lithic assemblage from 31Dh234. Particular attention is paid to metric data, breakage patterns, and comparisons with relevant piedmont sites. Subsequent sections will cover raw materials and intra-site distribution of artifact types.

TABLE 3

Lithics Summary by Category and Material, 31Dh234

	Rhyolite	Quartz	Crystal Quartz	Jasper	Other	TOTAL
FLAKED						
Hafted Bifaces	115	33	1	2	4	155
Preforms	57	6	5	0	1	69
Bifaces	128	23	8	2	1	162
Unifaces	9	20	19	0	2	50
UNFLAKED						
Cobble Tools	1	42	0	0	27	70
Flake Tools	252	36	16	2	13	319
Polished Stone	0	0	0	0	35	35
Debitage	7678	1386	590	118	449	10,221
TOTAL	8240 (74%)	1546 (14%)	639 (6%)	124 (1%)	532 (5%)	11,081 (100%)

HAFTED BIFACES

The 155 hafted bifaces recovered from 31Dh234 represent the piedmont cultural sequence from Paleo-Indian to Historic occupations, with the late prehistoric Woodland period forming the major component. Distribution of hafted bifaces by type and excavation are shown in Table 4, and types by stratigraphic level are shown in Fig. 32.

Hardaway (Coe 1964:64-67)

One Hardaway-Dalton base (Cat. No. 128-149) of rhyolite was recovered from the Plowzone of Excav. Unit 5 (Fig. 33a). The transverse break permits measurement only of thickness, which is 6.5 mm.

Table 4. Diagnostic hafted bifaces by excavation unit.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Other*	Total
Hardaway					1														1
Palmer										1	1								2
Kirk									1			1						5	7
Stanly			1										1					2	4
Morrow Mountain II	3	2		4					3	3	1		2	3	1		2	1	25
Guilford	2					1			2	3	2		1					2	13
Savannah River					1			1		1		1							4
Unident. Stemmed & Notched				3								1	2			1		1	8
Woodland Dart Points												1						3	4
Badin										1								1	2
Yadkin	1						1				2							3	7
Small Woodland Triangles	2		1	7	2	1		2	2	24	9	2	2	2	3		2	5	65
Woodland Stemmed	1	1		1		1					2							1	7
Pee Dee Pentagonal											1								1
Randolph	1								1			1	1		1				5
TOTAL	10	3	2	15	3	3	1	3	9	33	18	7	9	5	5	1	4	24	155

*Features and Surface

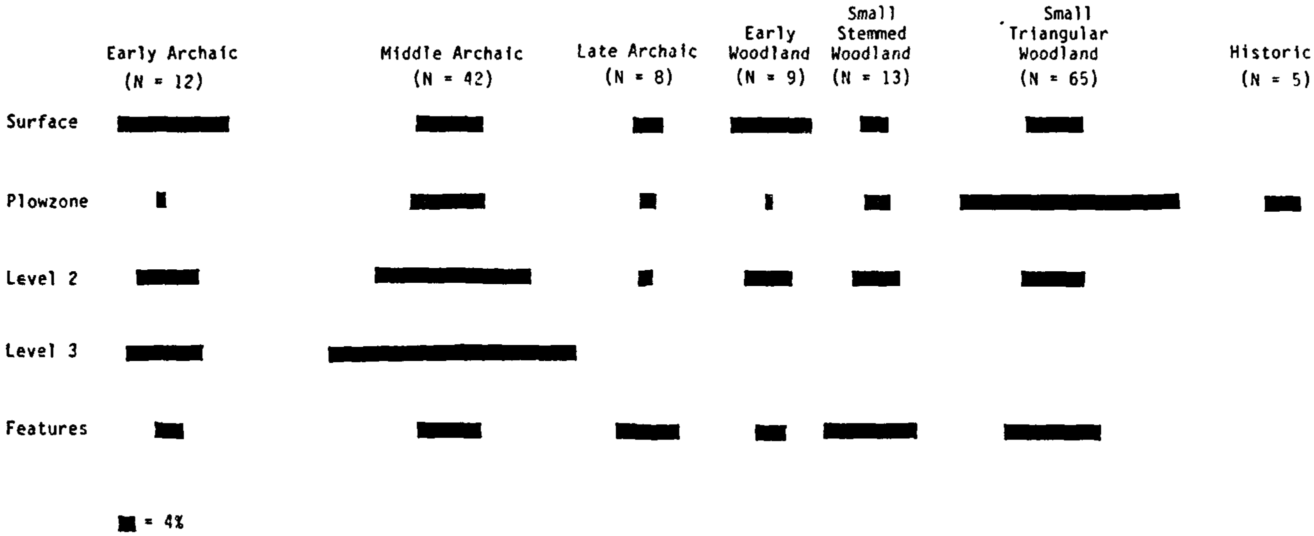


Figure 32. Seriation of hafted bifaces at 31Dh234.

Palmer (Coe 1964:67-69)

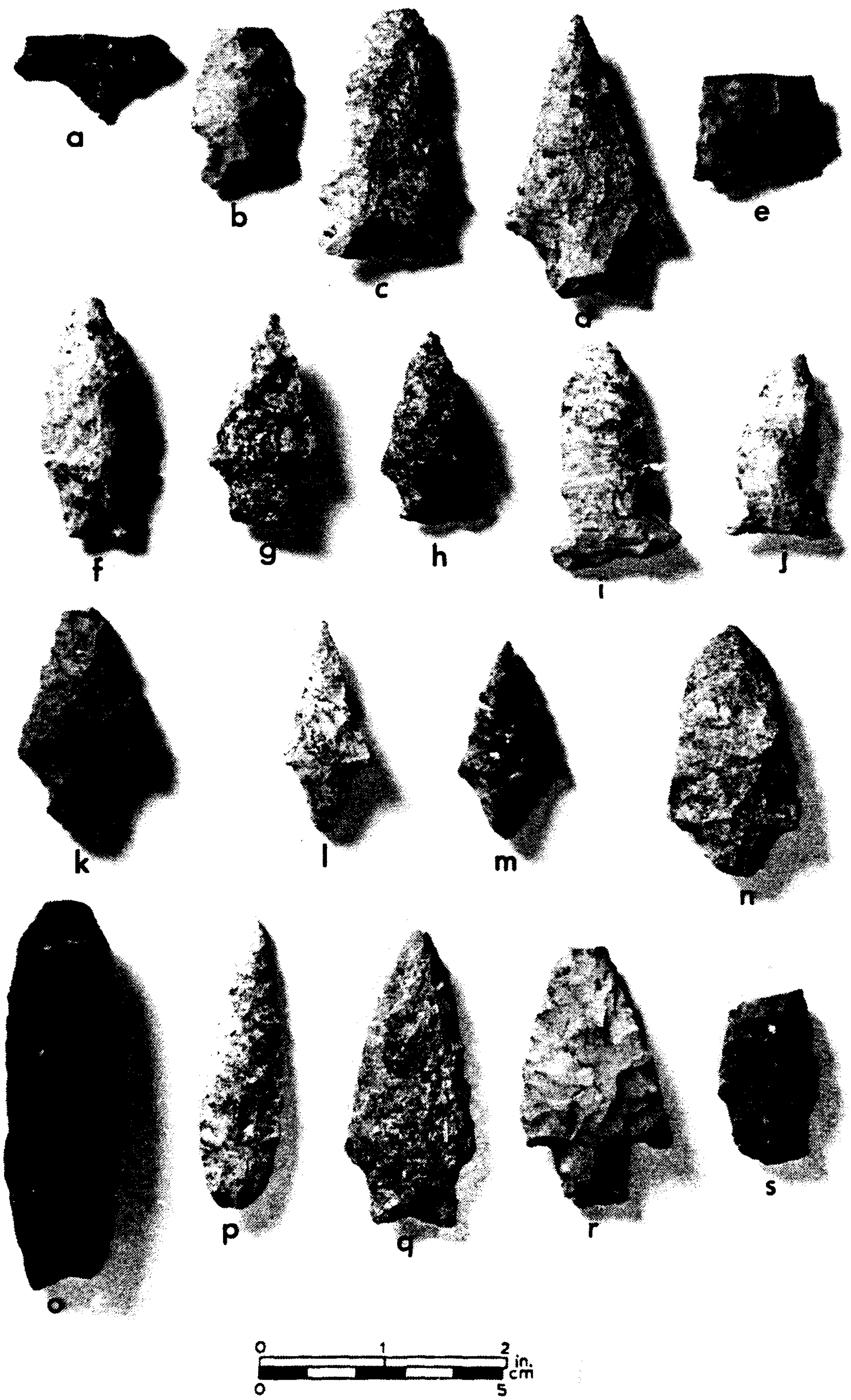
Two specimens, both of rhyolite, were recovered from the Plowzone of Excav. Unit 11 and Level 2 of Excav. Unit 10. The first (Cat. No. 146-150) has a missing tip, is heavily worn, and appears to be side- rather than corner-notched (Fig. 33b). A transverse break on the other specimen left only the base and one shoulder. Bases and tangs of both specimens are ground. Measurements are as follows:

Cat. #	Material	Stem Length	Should. Width	Max. Thick.	Stem Length	Base Width
146-150	Rhyolite	--	21.7mm	6.7mm	11.0mm	--
149-150a	Rhyolite	--	--	6.6mm	11.0mm	24.0mm

Kirk (Coe 1964:69)

All of tnese hafted bifaces are made of rhyolite (Fig. 33c, 33d, 33h). Four are corner-notched and three are stemmed. Four specimens were recovered from the site Surface, one each from Levels 2 and 3 (Excav. Units 9 and 12), and one from Fea. 12. The thickness of one (Cat. No. 114-150) suggests that it was discarded during manufacture when the blade could not be successfully thinned.

Figure 33. Paleo-Indian and Archaic hafted bifaces from 31Dh234. a. Hardaway-Dalton base (Cat. No. 128-149); b. Palmer side notched biface (Cat. No. 146-150); c. Kirk corner notched biface (Cat. No. 157-150); d. Kirk stemmed biface (Cat. No. 87-150); e. Early Archaic preform (Cat. No. 169-153A); f. Unidentified Archaic hafted biface (Cat. No. 155-150B); g. Unidentified Archaic hafted biface (Cat. No. 113-150); h. Kirk corner notched biface (Cat. No. 93-150); i. Unidentified Archaic hafted biface (Cat. No. 115-150C); j. Unidentified Archaic hafted biface (Cat. No. 159-150B); k. Stanly stemmed biface (Cat. No. 156-150C); l. Morrow Mountain II hafted biface (Cat. No. 145-150A); m. Morrow Mountain II hafted biface (Cat. No. 94-150); n. Morrow Mountain II hafted biface (Cat. No. 169-150); o. Guilford hafted biface (Cat. No. 124-150); p. Guilford hafted biface (Cat. No. 150-150B); q. Savannah River stemmed biface (Cat. No. 145-150E); r. Savannah River stemmed biface (Cat. No. 115-150B); s. Unidentified Archaic hafted biface (Cat. No. 170-152A).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Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	3	53.0	9.7	39.4-61.0
Stem length	6	12.4	1.1	10.7-13.6
Shoulder width	7	25.2	4.7	20.8-34.5
Base width	5	21.7	19.4	18.5-27.9
Thickness	7	10.6	2.8	8.0-16.6

Stanly (Coe 1964:35-36)

All specimens are made of rhyolite (Fig. 33k). Two were recovered from the Plowzone of Excav. Units 3 and 13, one was collected from the site Surface, and one was recovered from Fea. 4. Only one item was complete (Cat. No. 99-150), while another consists only of a base. Two have missing tips; one loss was caused by a transverse break, while the other appears to be an impact fracture.

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	1	36.2	--	36.2
Stem length	4	11.3	0.8	10.5-12.7
Shoulder width	4	29.3	1.5	27.6-31.7
Base width	4	16.3	4.8	9.2-21.5
Thickness	4	7.5	0.7	6.6-8.2

Morrow Mountain II (Coe 1964:37)

All of the Morrow Mountain hafted bifaces correspond to Coe's Type II (Fig. 33l, 33m, 33n); 23 of the 25 specimens are of rhyolite, one of quartz, and one of quartzite. In terms of stratigraphy, 16 were recovered from the site Surface or Plowzone; five from Level 2 (Excav. Units 4, 9, 11, and 13); three from Level 3 (Excav. Units 1, 2, and 4); and one from Fea. 10. Only eight specimens were complete, while the distal end was broken in 56% of the sample (n=14). The basal part of the stem was broken off or unthinned on one specimen (Cat. No. 159-150a), and a shoulder was missing from Cat. No. 150-150a. In one case (Cat. No. 162-150b), a transversely broken point was represented by only the base and one shoulder. Morrow Mountain II dimensions are summarized below.

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	8	43.8	12.4	28.0-71.8
Stem length	23	12.0	3.1	5.3-17.6
Maximum width	24	22.6	2.9	18.9-30.0
Maximum thickness	25	8.5	2.3	5.0-14.2

Guilford (Coe 1964:40-43)

Twelve of the 13 Guilford hafted bifaces are made of rhyolite (Fig. 33p); one is of basalt (Fig. 33o). Five items (38%) of this type were complete.

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	5	63.7	16.4	51.1-96.0
Maximum width	12	24.4	3.4	17.0-30.6
Maximum thickness	12	11.2	1.7	7.6-14.0

Savannah River (Coe 1964:44-45)

The four specimens recovered from 31Dh234 are all of rhyolite (Fig. 33q, 33r). Two were collected from the Plowzone, and the others from Feas. 7 and 8. Only one Savannah River point is complete; two are represented by bases; the other appears to have snapped in the middle of the blade.

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	1	61.5	--	61.5
Stem Length	4	16.4	4.0	13.4-23.2
Shoulder width	3	34.4	5.2	27.5-40.0
Base width	3	23.1	0.8	22.3-24.2
Maximum thickness	4	10.7	1.4	9.0-12.1

Halifax (Coe 1964:108-110)

Three shallowly side-notched, hafted bifaces resemble this type, which is described as relatively common in eastern North Carolina and Virginia (Coe 1964:110). Halifax is previously reported from the Falls Lake area (Hargrove et al. n.d.:6.11). While the majority of Halifax hafted bifaces recovered at the type site were made of quartzite, the specimens from 31Dh234 are all of rhyolite. Summary dimensions are given below.

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	2	46.9	2.5	44.4-49.5
Stem length	3	14.2	2.9	13.8-14.5
Shoulder width	3	21.7	0.8	20.6-22.6
Base width	3	15.5	0.3	15.0-15.8
Maximum thickness	3	9.7	0.9	8.7-10.7

Unidentified Archaic Hafted Bifaces

This category includes three stemmed and two side-notched rhyolite hafted bifaces, which were assigned to the Archaic period on the basis of their size, weight, and hafting morphology (Fig. 33g, 33i, 33j, 33s). One specimen (Cat. No. 115-150b) from Level 2 of Excav. Unit 4 is tentatively classified as a Savannah River variant (Fig. 33f).

The two side-notched points were recovered from Level 2 (Excav. Units 4 and 13) and have ground bases and tangs. A number of side-notched points such as the Taylor (Michie 1966:123), Big Sandy (Cambron and Hulse 1969:13) and Kessell (Broyles 1971:60-61) have been found in Early Archaic contexts in the southeastern United States. The two large-based, prominently tanged, side-notched points from 31Dh234 resemble the Rowan type reported from several southeastern states (Perino 1971:88). Summary dimensions are given below.

Dimensions (in mm)

	N	Mean	Range
Maximum length	-	--	--
Stem length	2	14.1	12.6-15.7
Shoulder width	2	18.2	17.2-19.3
Base width	2	24.7	22.4-27.1
Maximum thickness	2	7.6	7.0-8.2

Badin (Coe 1964:45-46)

Two Badin hafted bifaces are of rhyolite (Fig. 34a, 34b). The asymmetrical outline and heavily worn serrations on one (Cat. No. 149-151b)(Fig. 34a) suggest use as a knife rather than as a projectile point.

Dimensions (in mm)

	N	Mean	Range
Maximum length	2	53.8	46.2-61.5
Maximum width	2	29.4	26.6-32.2
Maximum thickness	2	8.6	6.6-10.6

Yadkin (Coe 1964:45)

Five (71%) of the seven Yadkin hafted bifaces (Fig. 34c, 34d) are made of rhyolite; the other two are of quartz and basalt. Stratigraphically, two examples each of this type were recovered from the site Surface, Plowzone, and Level 2 (Excav. Units 1 and 7), while the seventh came from Fea. 6. Only one specimen was complete; five had missing tips; and one was so badly shattered that only one corner and edge remained.

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	1	38.1	--	38.1
Maximum width	6	24.0	5.5	19.8-35.8
Maximum thickness	7	7.7	2.4	4.3-10.9

Small Woodland Triangles

Small triangular hafted bifaces were used from Middle Woodland times to the Historic period in the North Carolina piedmont. Numerous types (Uwharrie, Caraway, Clarksville, Dan River, Hillsboro, Pee Dee) have been defined. Although there is a general tendency toward smaller size through time, attempts to distinguish relative age on the basis of size or morphology appears to apply to the assemblage, rather than the individual, artifact level (Tippitt and Daniel 1986:233-234).

Sixty-five triangular projectile points, other than Badin or Yadkin types, were found at 31Dh234 (Fig. 34e through 34n). Sixty-one (94%) were recovered from the Plowzone, and the other four from Level 2 (Excav. Units 4, 9, 10, and 11) (Fig. 32). Rhyolite and quartz were used for 48% (n=31) and 45% (n=29), respectively. Two triangular points are of jasper (Fig. 34i), with one point each of crystal quartz, chert, and basalt.

Dimensions (in mm)

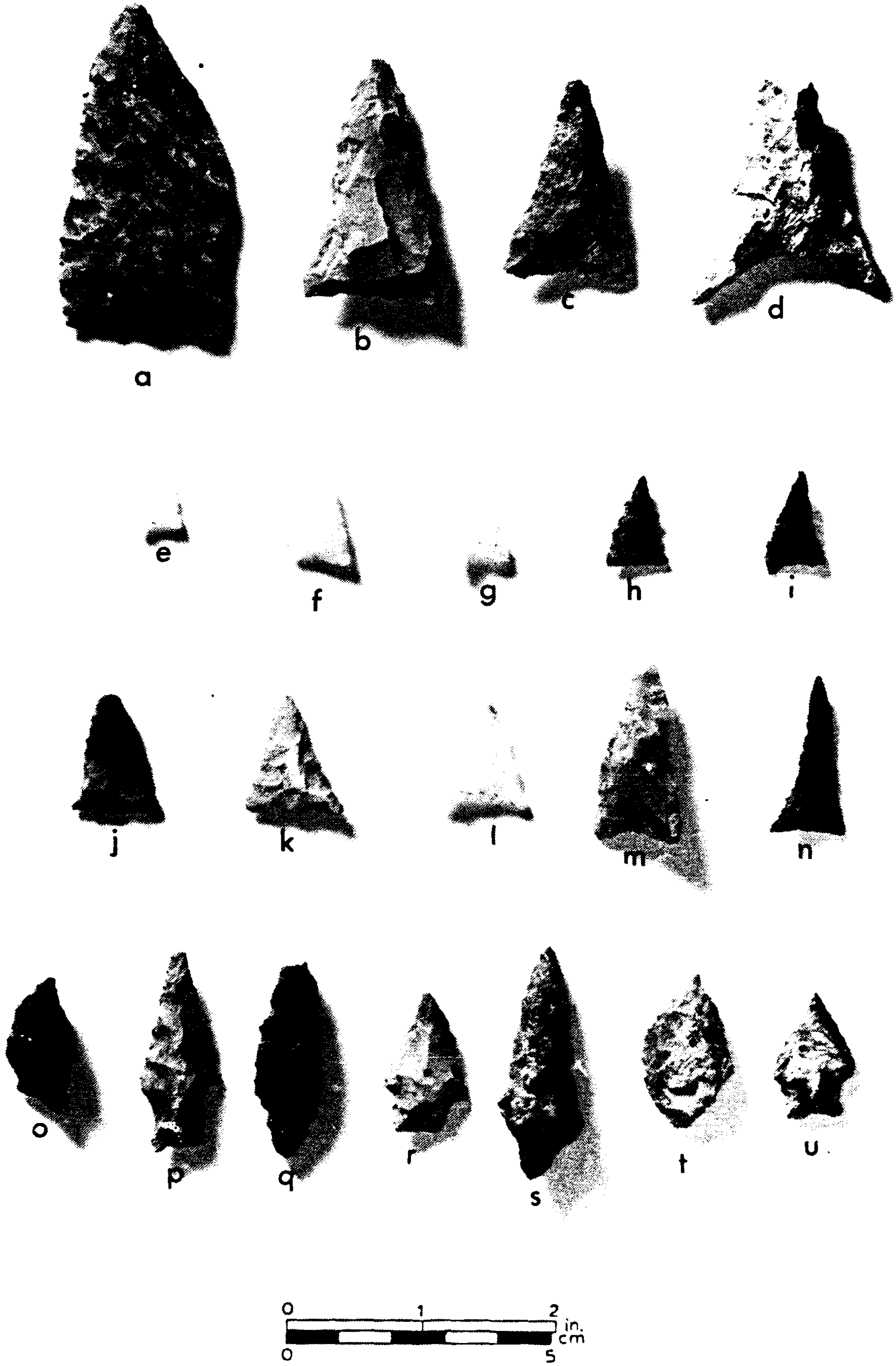
	N	Mean	Stdd. Dev.	Range
Maximum length	26	18.6	5.7	11.4-35.0
Maximum width	40	16.3	3.1	11.2-35.0
Maximum thickness	65	4.2	1.1	3.1-9.3

Charting the maximum length and basal width measurements of the 15 complete triangular points (23%) shows that three distinct clusters are present (Fig. 35). Summary metric measurements for all triangular points and each cluster are presented in Table 5. The cluster having the smallest dimensions is referred to as Group I, with Group III having the largest dimensions.

The sample of complete Woodland triangular points is small, but the mean dimensions are comparable to those of established piedmont types.

Group I corresponds most closely with the Clarksville type descriptions (median length 14.0 mm, median width 15.0 mm, length/width ratio 1:8) at the Gaston site (Coe 1964:118). Group III corresponds to the Dan River type, with a reported mean length of 27.0 mm, mean width of 15.0 mm, and length/width ratio of 1:8 from Sara Town (Lewis 1951:265). There is more variation between Group II and piedmont triangular point type descriptions, but it appears to fall between the dimensions reported for the Pee Dee (median length 25.8 mm, median width 18.9 mm, length/width ratio 1:37) and Uwharrie (median length 26.4 mm, median width 17.0 mm, length/width ratio 1:5) types at the Donnaha site (Woodall 1984:88).

Figure 34. Woodland hafted bifaces from 31Dh234. a. Badin point (Cat. No. 149-151B); b. Badin point (Cat. No. 71-151); c. Yadkin point (Cat. No. 146-151B); d. Yadkin point (Cat. No. 132-151); e. Small Woodland triangular hafted biface (Cat. No. 92-151B); f. Small Woodland triangular hafted biface (Cat. No. 104-151); g. Small Woodland triangular hafted biface (Cat. No. 145-151Q); h. Small Woodland triangular hafted biface (Cat. No. 144-151A); i. Small Woodland triangular hafted biface (Cat. No. 146-151H); j. Small Woodland triangular hafted biface (Cat. No. 146-151E); k. Small Woodland triangular hafted biface (Cat. No. 131-151A); l. Small Woodland triangular hafted biface (Cat. No. 145-151C); m. Small Woodland triangular hafted biface (Cat. No. 110-151A); n. Small Woodland triangular hafted biface (Cat. No. 145-151A); o. Woodland stemmed biface (Cat. No. 147-151B); p. Woodland stemmed biface (Cat. No. 146-151A); q. Unidentified Woodland lanceolate hafted biface (Cat. No. 155-151A); r. Thelma point (Cat. No. 110-151G); s. Randolph point (Cat. No. 144-151C); t. Randolph point (Cat. No. 144-151C); u. Woodland stemmed biface (Cat. No. 96-151B).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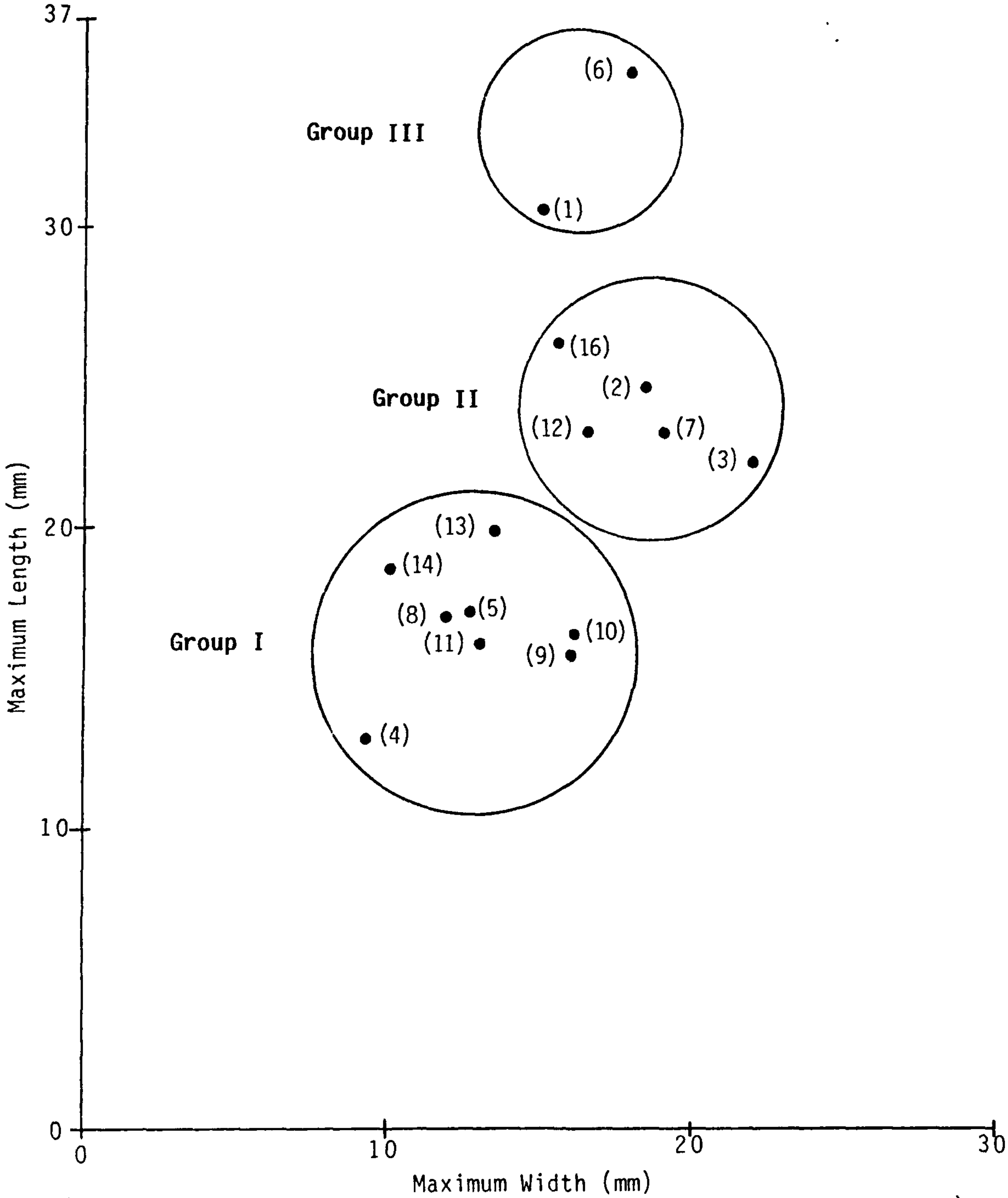

(Numbers in parentheses correspond to catalog numbers. See Table 5)

Figure 35. Size clusters for Woodland small triangular hafted biface.

TABLE 5

Mean Metric Attributes of Triangular Points (in mm)
31Dh234

	N	Max. Length	Basal Width	Maximum Thickness	Length/Width Ratio
Group I	8	16.7	13.0	3.5	1:1
Group II	5	23.8	18.5	4.3	1:1
Group III	2	26.1	14.8	6.2	1:1
All Triangles		18.6*	16.3**	4.4***	

* N=26 **N=40 ***N=65

Group I Cat. No.	# on Fig. 35	Group II Cat. No.	# on Fig. 35	Group III Cat. No.	# on Fig. 35
92-151b	4	145-151C	2	145-151a	1
104-151	5	145-151d	3	110-151a	6
144-151a	8	131-151a	7		
145-151j	9	146-151e	12		
145-151m	10	169-151c	15		
145-151q	11				
146-151f	13				
146-151h	14				

Woodland Stemmed and Lanceolate

Small, contracting-stemmed, hafted bifaces resembling miniature Morrow Mountain points have been found in Woodland contexts both in the North Carolina piedmont (Claggett and Cable 1982; Spielmann 1976) and Tennessee (Lewis and Kneberg 1959). Three rhyolite specimens of this description were identified at 31Dh234; two were recovered from site Surface and Plowzone contexts, and the other was from Fea. 9. The tips are missing from all three specimens. One specimen has a lanceolate form, and resembles a miniature Guilford (Fig. 34q).

Dimensions (in mm)

	N	Mean	Range
Maximum length	--	--	--
Stem length	3	9.3	5.8-11.5
Shoulder width	3	14.0	13.0-14.0
Maximum thickness	3	7.1	4.7-9.6

A variety of small, stemmed, hafted bifaces are associated with Early Woodland phases in the North Carolina piedmont, and have been variously described as "Early Cera..ic" (Spielmann 1976) or "dart points" (Hargrove et al. n.d.). Five stemmed points from 31Dh234 exhibit short, thick blades and poorly formed side notches or stems (Fig. 34o, 34p, 34u).

Significant numbers of small stemed, notched, and lanceolate points atypical of established types in the piedmont archaeological sequence were reported in the Haw River study (Claggett and Cable 1982). These may represent transitional forms between stemmed and notched Archaic types and the triangles of the Woodland period. Alternatively, they may be supplemental projectile point forms used in conjunction with better known Late Archaic Savannah River hafted bifaces (Claggett and Cable 1982:770).

<u>Thelma</u> (South 1959:151-152)

Two of the small stemmed points from 31Dh234 resemble the Thelma type, which has a slender triangular blade and a short, broad, rectangular stem (South 1959:151-152)(Fig. 34r). Summary dimensions are as follows:

Dimensions (in mm)

	N	Mean	Range
Maximum length	1	27.0	27.0
Stem length	2	9.3	6.9-11.7
Shoulder width	2	15.7	14.8-16.6
Basal width	2	10.4	10.0-10.8
Maximum thickness	2	6.7	5.8-8.0

<u>Randolph</u>

This type resembles miniature Morrow Mountain points, but is more crudely made, often reworked from earlier hafted bifaces. All of the specimens from 31Dh234 are of rhyolite, and exhibit cortex on both faces (Fig. 34s, 34t).

Dimensions (in mm)

	N	Mean	Stdd. Dev.	Range
Maximum length	2	37.4	6.9	30.5-44.3
Stem length	4	10.7	0.9	9.4-12.0
Maximum width	5	18.1	1.3	17.0-20.5
Maximum thickness	5	8.7	1.3	6.8-10.7

One other hafted biface differs by having a broad stem, and superficially resembles an Archaic period bifurcate. Since it also exhibits cortex and the workmanship is crude, it is considered to be a late historic period specimen contemporary with the Randolph type.

PREFORMS

A total of 69 preforms -- blanks which have not been shaped into finished bifaces or projectile points -- were recovered from 31Dh234. Of this number, approximately one-third were complete enough to permit some temporal assignment (Table 6). The distribution of preforms by unit and level is presented in Table 7.

TABLE 6

Lithic Preforms by Temporal Period and Raw Material
31Dh234

Period	Rhyolite	Quartz	Crystal Quartz	Argillite	TOTAL
Paleo-Indian/ Early Archaic	4	0	0	0	4 (6%)
Middle Archaic	6	2	0	0	8 (12%)
Late Archaic	2	1	0	1	4 (6%)
Middle Woodland	0	0	1	0	1 (1%)
Late Woodland	6	1	0	0	7 (10%)
Unidentified	39	2	4	0	45 (65%)
TOTAL	57	6	5	1	69 (100%)

TABLE 7

Distribution of Preforms by Excavation Unit and Level
31Dh234

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Other	TOTAL
Plow Zone	3	1	0	7	1	2	0	0	1	11	5	2	0	1	3	0	2	7	46
Level 2		3		3					3	1	5	1	1					3	20
Level 3		1		1						1									3
TOTAL	3	5	0	11	1	2	0	0	4	13	10	3	1	1	3	0	2	10	69

A Hardaway side-notched preform (Cat. No. 119-153) from Level 3 of Excav. Unit 4 was unfinished; the thick portion at the top of the blade suggests that this specimen was broken in manufacture and may have been recycled as a drill. A second thin, carefully flaked blade of Flat Swamp Mountain rhyolite (Fig. 36a)(Cat. No. 173-152) was recovered from the lower level of Fea. 9. Based on its general morphology and workmanship, it probably dates from an Early Archaic context.

Two other rhyolite preforms were also assigned to the Early Archaic period. One (Cat. No. 167-153)(Fig. 36c) appears to be a side-notched type. The second preform (Cat. No. 169-153a)(Fig. 33e) appears to belong to the Palmer/Kirk continuum. Hafted bifaces with extremely short, corner-notched bases seem to occur in the southeastern United States at the end of the Early Archaic period between Kirk and Bifurcate types (Albert C. Goodyear, personal communication 1988). All four Early Archaic preforms from 31Dh234 consist of basal fragments, and may have been broken during the thinning stages of manufacture.

It was not possible in all cases to separate the eight Middle Archaic preforms by phase, given the similarity of Guilford and Morrow Mountain forms and method of manufacture (Anderson 1979:90-91). At least two of these specimens (and one of the Late Archaic Savannah River preforms) appear to have been discarded during manufacture because of failure to thin the material, rather than from breakage.

The Woodland preform sample is smaller than the Archaic sample, and consists primarily of preforms for small triangles. Single specimens of Yadkin and Randolph types are present.

The remaining two-thirds of the preform assemblage could not be identified by temporal period or phase. Only five specimens (4 rhyolite, 1 quart) are complete, and consist of roughly shaped, oval bifaces of widely varying dimensions.

Although 33 of the 45 specimens in this "unidentified" category consist of basal ends, they are uniformly rounded and lack differentiating characteristics. Three distal ends (tips) and three mid-sections are also present. In addition to the Hardaway preform mentioned above, one other specimen (Cat. No. 147-154a) shows signs of reuse. This preform was formed by the removal of several large flakes, and evidently broke during manufacture. One lateral edge of the basal end has been unifacially retouched, although the original flaking remains bifacial.

UNIFACES

Forty-nine unifaces were recovered from 31Dh234, and are classified into two groups of end scrapers, and three groups of side scrapers, as defined below. Edge angles were measured in the following manner: Using a protractor, angles were drawn from the horizontal plane at intervals of 5 degrees. Measurements were taken at the central point of the working edge when the ventral face of the uniface was placed on the horizontal plane (0 degrees)(Goodyear et al. 1979:189). Table 8 presents unifaces by type and raw material; Table 9 presents their distribution by unit and level.

TABLE 8

Distribution of Uniface Scrapers by Type and Raw Material
31Dh234

	Crystal Quartz	Quartz	Quartz Pebble	Rhyolite	Other	TOTAL
End Scrapers						
Type I	10	5	4	1	0	20
Type II	3	1	0	2	0	6
Side Scrapers						
Type I	1	1	0	1	1^	4
Type II	0	3	2	4	0	9
Type III	5	2	1	1	1*	10
TOTALS	19	12	7	9	2	49

^ Chert   * Unidentified

Figure 36. Lithic specimens from 31Dh234. a. Early Archaic preform (Cat. No. 173-152); b. Lanceolate biface (Cat. No. 137-152); c. Early Archaic preform (Cat. No. 167-153); d. Parallel sided drill (Cat. No. 128-158); e. Side notched drill (Cat. No 110-158A); f. Lanceolate drill (Cat. No. 131-158A); g. Expanded base drill (Cat. No. 145-158B); h. Perforator (Cat. No. 92-158); i. Perforator (Cat. No. 132-158); j. Graver (Cat. No. 157-158); k. Graver (Cat. No. 104-158); l. Burin (Cat. No. 110-158C); m. End scraper recycled from Guilford biface (Cat. No. 110-171); n. Triangular drill/knife recycled from Guilford preform (Cat. No. 178-171).

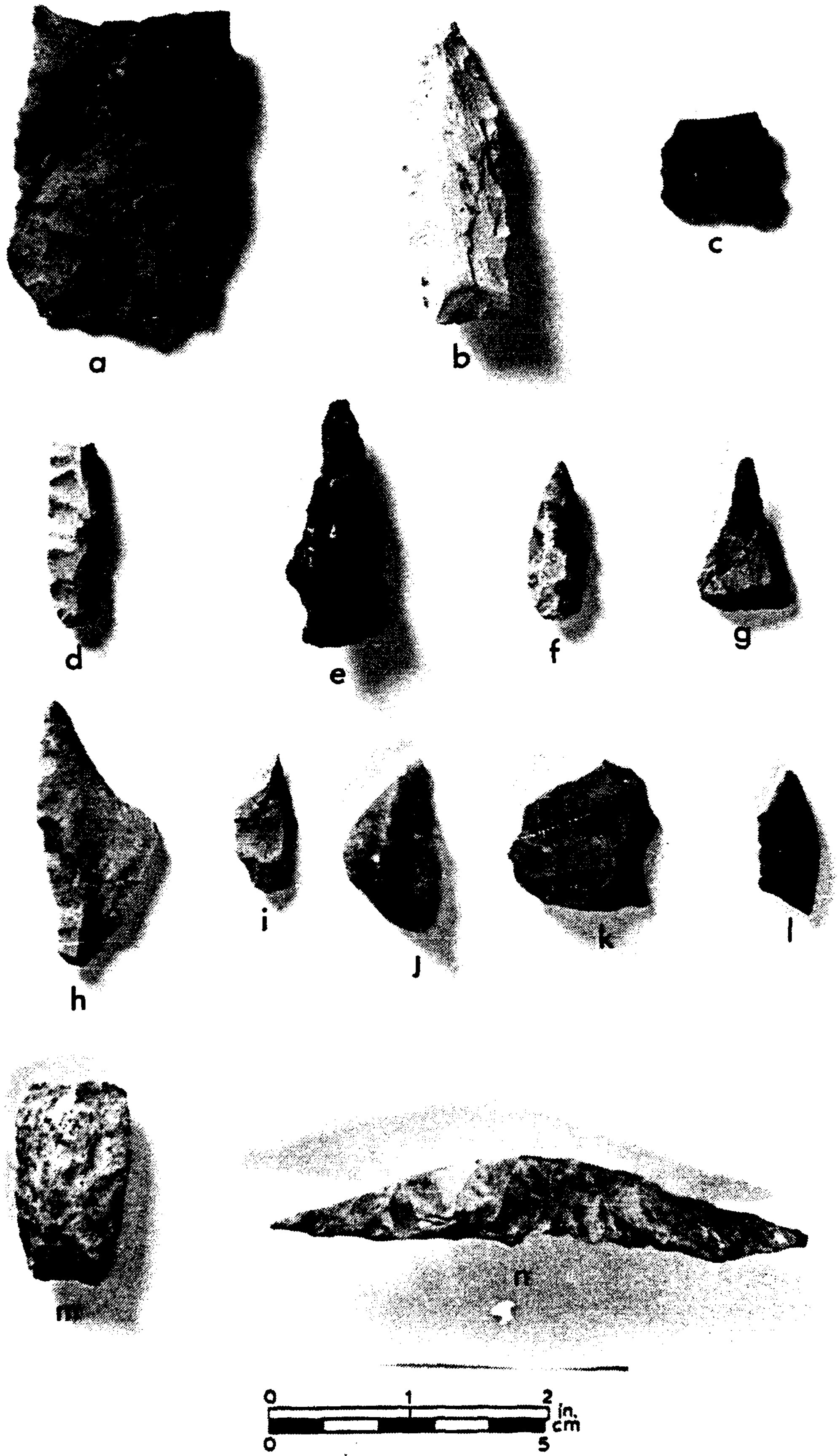
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TABLE 9

Distribution of Unifaces by Excavation Unit and Level
31Dh234

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Other	TOTAL
										Plow Zone									
End Scrapers																			
Type I				2		1		1		2		2	3	1	1		4		17
Type II	2			1	1													1	5
Side Scrapers																			
Type I										1	1								2
Type II				1					1	1								4	7
Type III	1							1					1	1	3				7
										Level 2									
End Scrapers																			
Type I											1							1	2
Type II										1									1
Side Scrapers																			
Type I		1								1									2
Type II		1																1	2
Type III				1														1	2
										Level 3									
End Scrapers																			
Type I		1																	1
Type II																			
Side Scrapers																			
Type I																			
Type II																			
Type III																		1	1
TOTAL	3	3	0	5	1	1	0	2	1	6	2	2	4	2	4	0	4	9	49

Type I end scrapers are made on thick, prismatic flakes, exhibit steep, unifacial retouch, and have smooth edges (Fig. 37a, 37b). These characteristics are shared with Coe's Type I uniface category (Coe 1964:73-76), but the scrapers from 31Dh234 differ from Coe's Type I in being generally less well made. They also lack the distinctive tear-drop shape of the steeply beveled, hafted end scrapers often associated with Paleo-Indian or Early Archaic occupations (Coe 1964:73; Wilmsen 1970; Wetmore and Goodyear 1986:63-64, Fig. 15; Peck 1985: Figs. 12, 13).

Type I end scrapers constitute the largest category of unifaces at 31Dh234. Half of these are made of crystal quartz, with other materials comprising quartz (n=5), quartz pebbles (n=4), and rhyolite (n=1). The use of irregular flakes and generally poor workmanship of these Type I scrapers suggest that they served as expedient rather than formal, curated tools. Summary dimensions are as follows:

Type I Uniface End Scrapers (N=20)
Dimensions (in mm)

	Mean	Stdd. Dev.	Range
Maximum length	21.6	7.7	11.6-43.2
Maximum width	22.1	5.8	13.2-35.0
Maximum thickness	9.1	2.9	5.8-19.0
Edge length	19.7	10.6	1.4-50.0
Edge angle	60 deg.	11.2	37-80 deg.

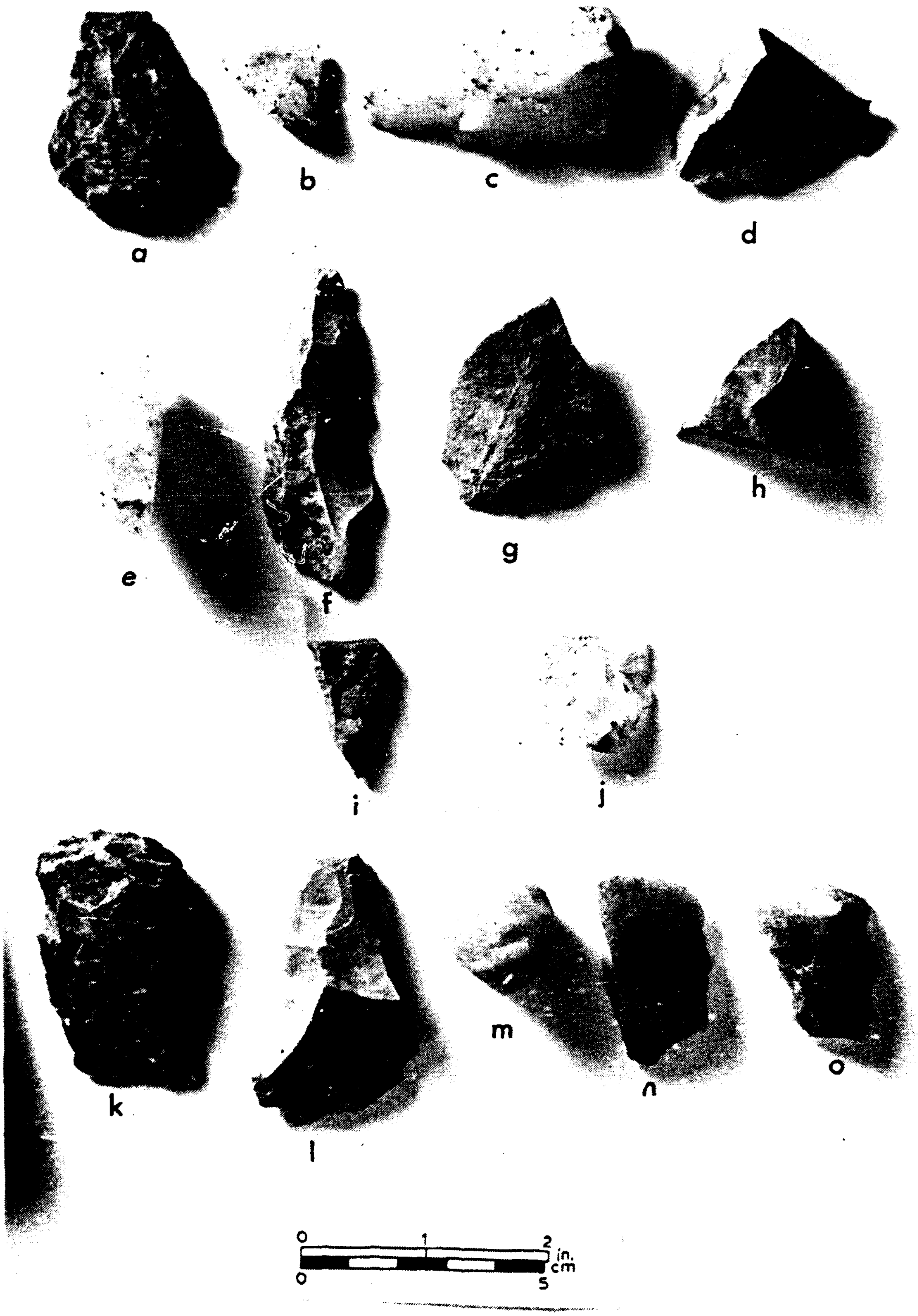
Type II end scrapers from 31Dh234 are made on flakes of random shapes and sizes (Fig. 37c, 37d). The edges are irregular and sharp, due to the gaps between flakes removed, and are similar to Coe's Type II and Type III end scrapers (Coe 1964:76). The six end scrapers of this type at 31Dh234 consist of bit fragments, suggesting discard after heavy use. Dimensions are as follows:

Type II Uniface End Scrapers (N=6)
Dimensions (in mm)

	Mean	Stdd. Dev.	Range
Maximum length	25.5	8.7	12.6-35.5
Maximum width	28.4	3.7	24.1-35.4
Maximum thickness	13.9	1.7	10.7-15.8
Edge length	22.1	12.5	3.0-38.0
Edge angle	59 deg.	12.1	45-80 deg.

The unifacial side scrapers correspond to Coe's three types (Coe 1964:77-79). Type I side scrapers are made on wedge-shaped flakes with sharp, irregular working edges which are rounded or crescent-shaped (Fig. 37e, 37f). Type II side scrapers are made on irregular flakes with little shaping (Fig. 37g). This type may have more than one working face and exhibits sharp, irregular working edges. Type III side scrapers are similar to Type II, but are made on thin, narrow flakes (Fig. 37i, 37j).

Figure 37. Lithic flake and pebble tools from 31Dh234. a. Type I end scraper (Cat. No. 171-154A); b. Type I end scraper (Cat. No. 171-154D); c. Type II end scraper (Cat. No. 110-154A); d. Type II end scraper (Cat. No. 128-154A); e. Type I side scraper (Cat. No. 146-154A); f. Type I side scraper (Cat. No. 149-154A); g. Type II side scraper (Cat. No. 2-154B); h. Type II side scraper (Cat. No. 164-154); i. Type III side scraper (Cat. No. 115-154); j. Type III side scraper (Cat. No. 169-154A; k. Rectangular chisel wedge (Cat. No. 115-171); l. Spokeshave (Cat. No. 155-137); m. Pebble core (Cat. No. 146-173); n. Pebble tool (Cat. No. 144-155E); o. Pebble tool (Cat. No. 145-171).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Type I Uniface Side Scrapers (N=4)
Dimensions (in mm)

	Mean	Stdd. Dev.	Range
Maximum length	42.8	24.1	3.5-65.5
Maximum width	25.5	8.2	17.7-39.2
Maximum thickness	14.1	3.3	9.3-18.6
Edge length	56.2	27.7	12.0-86.0
Edge angle	46 deg.	9.3	40-62 deg.

Type II Uniface Side Scrapers (N=9)
Dimensions (in mm)

	Mean	Stdd. Dev.	Range
Maximum length	36.4	10.6	21.4-57.4
Maximum width	28.4	6.1	16.7-38.0
Maximum thickness	11.3	2.5	6.7-15.0
Edge length	34.3	13.5	20.0-62.0
Edge angle	52 deg.	10.3	33-66 deg.

Type III Uniface Side Scrapers (N=10)
Dimensions (in mm)

	Mean	Stdd. Dev.	Range
Maximum length	25.4	4.7	12.4-30.0
Maximum width	17.2	4.3	11.7-25.8
Maximum thickness	7.6	1.5	4.3-9.3
Edge length	20.7	11.7	1.6-48.0
Edge angle	49 deg.	7.8	37-65 deg.

In the sample from 31Dh234, median edge angles for both types of end scrapers (60 degrees) and the three types of side scrapers (48 degrees) are similar, regardless of morphology. Fig. 38 depicts a bimodal distribution for both uniface end and side scrapers. Edge angles of hafted uniface end scrapers at 38RD18 in the South Carolina fall line averaged 64 degrees (Wetmore and Goodyear 1986:63-64), while a survey in the South Carolina piedmont reported a median edge angle of 62 degrees for end scrapers (Goodyear et al. 1979).

Replication and ethnographic studies indicate that edge angle relates to functional use. It has been suggested that unifaces with relatively steep edge angles (approximately 60 degrees) were used to work hard materials, such as bone or dry wood (Coe 1964:81; Wilmsen 1970:71). Tools with edge angles below 35 degrees were associated with meat and skin cutting, while unifaces with cutting edges in the 46 - 55 degree range were associated with a variety of activities involving both soft

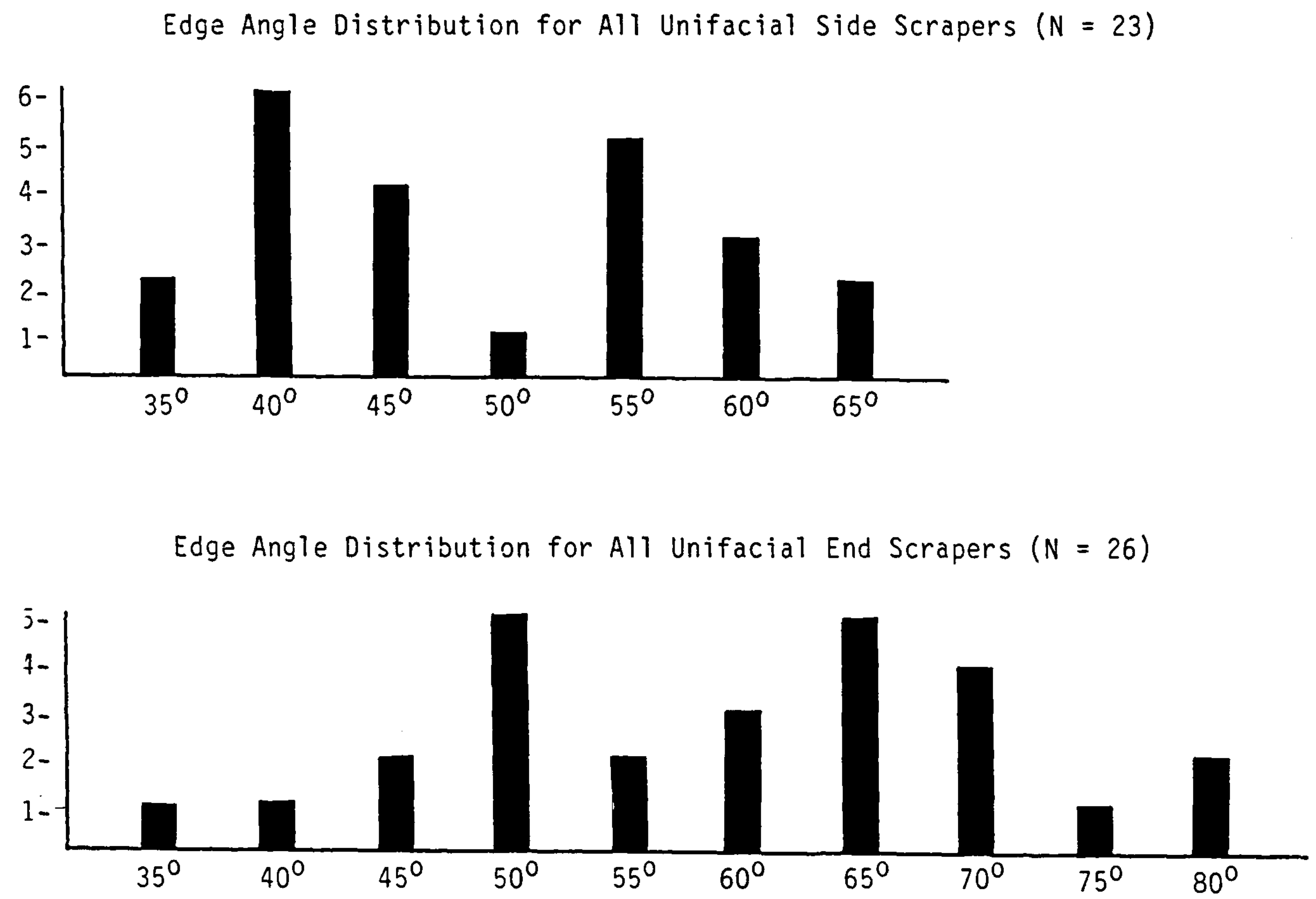


Figure 38. Frequency distribution of uniface edge angles.

(skins, hides, plants) and hard (wood, bone, antler) materials (Wilmsen 1970).

It should also be kept in mind, considering the wide range of edge angles within each of the categories described above, that reliance on mean angles could mask significant edge angle variability related to diverse tool uses (Daniel 1986:19). It is also likely that steep edge angles may reflect the end of the tool's useful life; if the uniface can no longer be sharpened, this factor may result in its discard (Daniel 1986:15).

A wide range of variability characterizes each dimension measured on the 31Dh234 uniface assemblage. The high standard deviation values show little homogeneity within types. Maximum thickness shows the least variance, while edge length exhibits the greatest divergence. Generally, the unifaces in the assemblage were made by the removal of irregular flakes. The great variation in morphology and working edge reinforces the conclusion that these were expedient tools, quickly made and briefly used. The uniface end scrapers associated with Early Archaic Palmer assemblages are well made and presumably were curated for an extended period of use (Coe 1964; Claggett and Cable 1982:285). By comparison, the unifaces at 31Dh234 appear to be expedient tools, comparable to Middle Archaic or later assemblages noted elsewhere in the Carolina piedmont (Coe 1964; Claggett and Cable 1982; Goodyear et al. 1979).

FLAKED STONE BIFACES

This category includes specimens which do not fall within the hafted biface or preform categories, and includes unidentifiable hafted biface fragments, unspecialized bifaces, and specialized forms such as drills, chisels, and axes. Bifaces could have served as hafted biface blanks, but are more carefully worked than preforms.

Forty-nine hafted biface fragments were recovered from 31Dh234. By materials, 34 (69%) are rhyolite, 12 (24%) are quartz, two (4%) are crystal quartz, and one (2%) is jasper. Breakage patterns show that hafted bifaces are represented by 22 distal ends (tips), 13 mid-sections, and 14 bases. A high percentage of bases could be interpreted as breaks occurring elsewhere (off-site), with the fragments discarded on-site at the time of retooling. Since nearly one-half (45%) of the fragments consist of tips, it is more likely that breakage occurred during on-site use or manufacture. The possibility remains, however, that tips were unintentionally returned to the site in animal carcasses.

Only 13 bifaces are complete. These are generally triangular, lanceolate (Fig. 36b) or oval in form, and show considerable variability in their dimensions, as shown below. Some of these specimens exhibit heavy wear in the form of smooth edges or use fracture flakes, and were probably used as knives or scrapers.

Dimensions (in mm)

	Mean	Stdd. Dev.	Range
Maximum length	58.5	13.1	35.4-81.6
Maximum width	26.0	6.0	16.5-36.2
Maximum thickness	11.4	3.1	8.5-16.8

Forty-four other bifaces are broken, and consist of one tip, nine mid-sections, and 34 bases. Since these were not hafted bifaces likely to be broken elsewhere, the high frequency of bases would seem to indicate breakage during on-site use. Rhyolite is the most frequently represented raw material, constituting 84% of the bifaces, followed by quartz (11%), crystal quartz (2%), and jasper (2%).

Three tools were recycled from hafted bifaces, either aborted during manufacture or broken during use. One rhyolite end scraper (Cat. No. 110-171) has the base of a Guilford hafted biface (Fig. 36m). A quartz denticulate (Cat. No. 131-171a) also appears to be recycled from a hafted biface. The third specimen (Cat. No. 178-171)(Fig. 36n) is a thick, triangular, bipointed drill or knife fashioned from an aborted Guilford preform (Albert C. Goodyear, personal communication 1988). The first two recycled hafted biface tools were recovered from the site Plowzone, and the third from Fea. 14.

Two rectangular chisels or wedges, both of rhyolite, were identified by the presence of crushing on the end opposite the cutting edge (Fig. 37k). One was recovered from the Plowzone of Excav. Unit 3, and the other from Level 2 of Excav. Unit 4.

One specimen (Cat. No. 128-169), resembling a thick, convex-based end scraper, is tentatively identified as an adze (cf. Daniel 1986:35, Fig. 15). The working edge shows signs of wear where flakes had been removed during use.

DRILLS

The drills in this category are bifacially flaked, and do not include perforators made from flakes, which are discussed in the section on flake tools. One specimen (Cat. No. 110-158a)(Fig. 36e) is a large, side-notched drill resembling a Kirk phase drill (Coe 1964:73). Another rhyolite drill has an expanded base (Fig. 36g). A third drill (Cat. No. 129-158a) is bifacially worked, but irregular in shape.

Two small lanceolate specimens, one of rhyolite (Fig. 36f) and one of quartz, are classified as drills, although they strongly resemble items identified as Woodland lanceolate points (Claggett and Cable 1982:584, 586; Spielmann 1976). The remaining 11 specimens are thick and slender, with parallel sides (Fig. 36d). This group contains no complete specimens, but consists of eight bases and three tips. The presence of both sections indicates on-site use and discard. It is likely that other broken drill fragments are present in the broken biface/projectile point category, although time did not permit cross-mending.

All but one of the bifacial drills are of rhyolite, the exception being a small lanceolate specimen of quartz. Eleven specimens were recovered from the site Plowzone, four from Level 2 and one from Level 3.

AXES AND CELTS

Three axes were recovered from 31Dh234. One is a Guilford axe (Cat. No. 167-165)(Fig. 39b) of an unidentified raw material. It has a thick, short blade with deep, concave sides. This axe was extensively resharpened, and smoothing of the flake scars indicates heavy wear. Another axe (Cat. No. 102-165) is thick and narrow, and is made from a type of porphyry; it has a slight constriction for hafting near the poll. A third specimen (Cat. No. 94-165) is grooved only on one side; being of micaceous schist, this tool may not have been sufficiently durable for use as an axe, although its morphology is similar to these tools. All three specimens were recovered from the site Surface or Plowzone.

Portions of three flaked celts were recovered during excavation at 31Dh234. All are made of rhyolite and are roughly rectangular in shape with rounded polls. Two originated in Surface contexts, and one was recovered from Level 2 of Excav. Unit 1.

Celts and axes are generally associated with woodworking, although the earliest flaked axes appear in Middle Archaic Guilford assemblages (Coe 1964). Studies of Old World Upper Paleolithic assemblages, prehistoric North American Plains Indian tools, and modern Navajo butchering practices indicate that hafted axes were used in butchering among these diverse cultures (Claggett and Cable 1982:270-274).

CHOPPERS

A variety of hand-held choppers were recovered from 31Dh234 (Fig. 39c, 39d, 39e, 39f), with eight of the 11 specimens made of rhyolite. Single specimens are also made of basalt, argillite, and a quartz cobble. Six apparently expedient tools belong to site Surface or Plowzone contexts, while three were recovered from Level 2 and two were recovered from Level 3.

Unflaked Stone

The majority of this group is composed of cobble tools, including 39 hammerstones, 15 abraders, five manos, five metates, and six anvils or "nutting stones." Polished stone is represented by one axe or celt bit and a polished atlatl handle.

HAMMERSTONES

Thirty-four (87%) of the 39 hammerstones from 31Dh234 consist of quartz or quartzite cobbles, while the remaining five are of basalt or metavolcanic material. Only those cobbles exhibiting signs of battering and wear are included in this category (Fig. 40a, 40b). Other hammerstones may have been assigned to the fire cracked rock category, particularly if they are broken or fire-reddened. Sixteen hammerstones were recovered from site Surface and Plowzone contexts; nine from Level 2; five from Level 3; and nine from features.

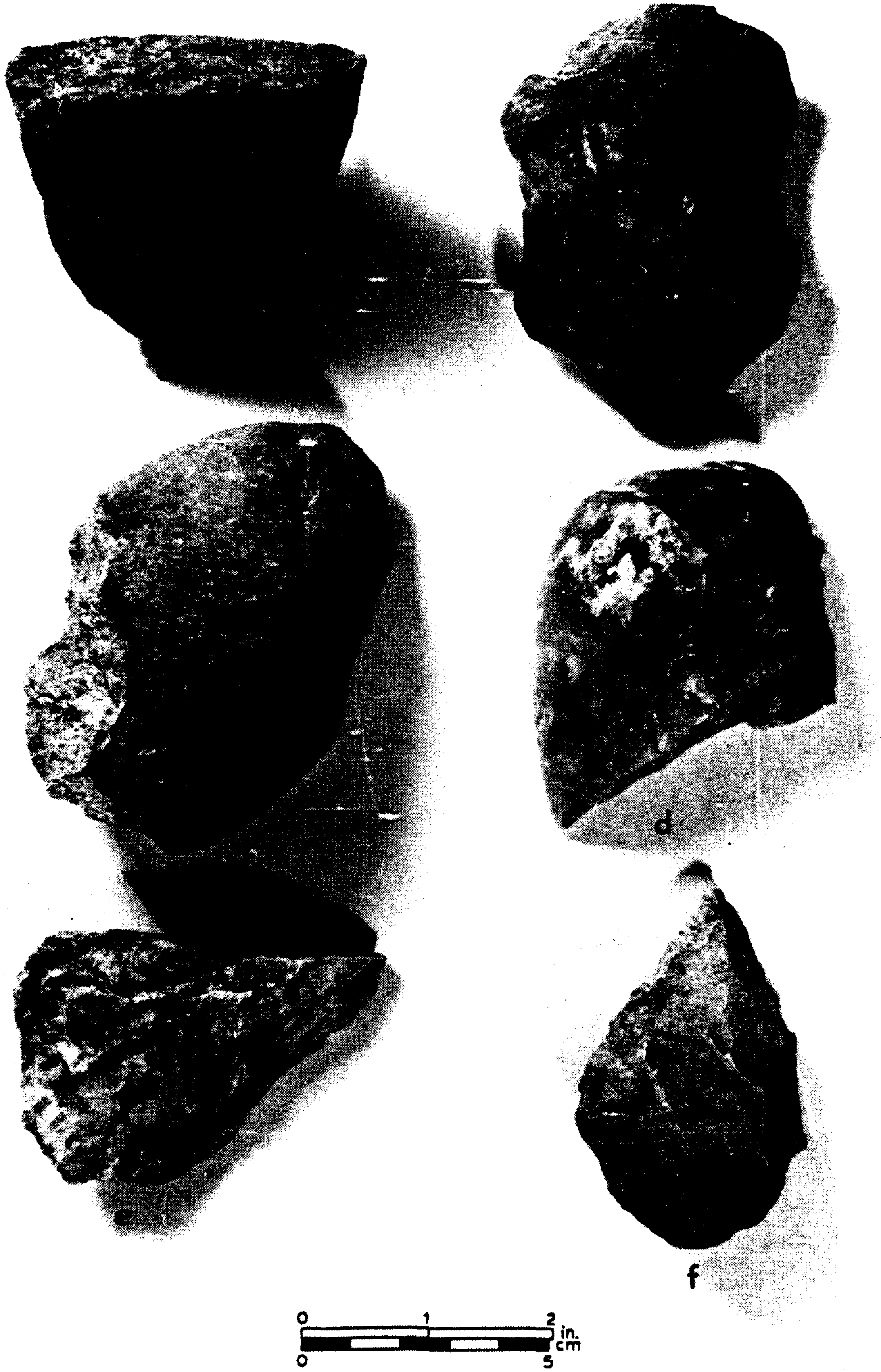


Figure 39. Unflaked lithic tools from 31Dh234. a. Ground celt bit (Cat. No. 27-165); b. Guilford axe (Cat. No. 167-165); c. Hand-held chopper (Cat. No. 104-170); d. Hand-held chopper (Cat. No. 157-170); e. Hand-held chopper (Cat. No. 145-170A); f. Hand-held chopper (Cat. No. 167-170B).

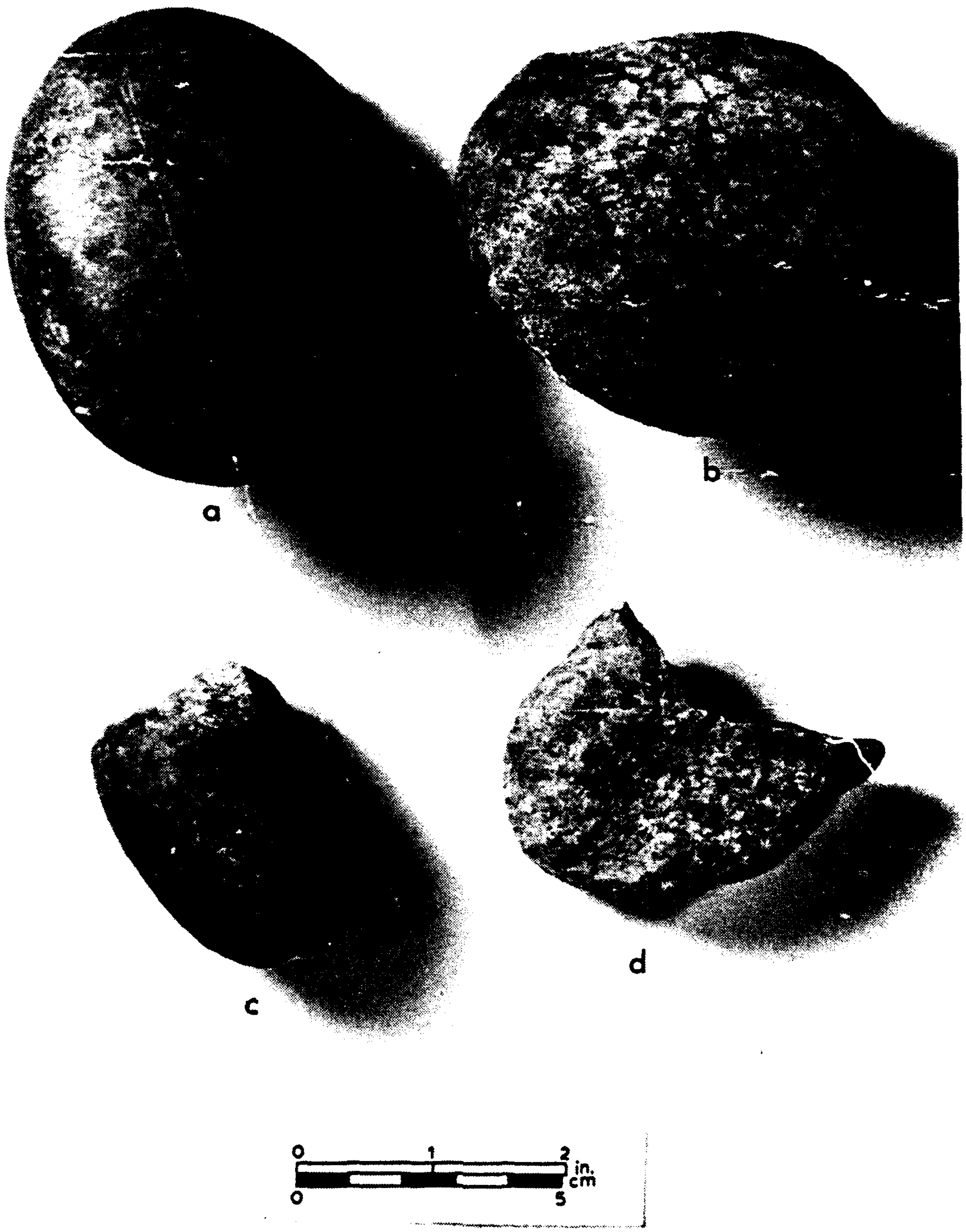


Figure 40. Unflaked lithic tools from 31Dh234. a. Hammerstone (Cat. No. 149-159); b. Hammerstone (Cat. No. 150-159); c. Cylindrical abrader (Cat. No. 169-163); d. Anvil (Cat. No. 139-160B).

ABRADERS

Fifteen abraders were identified on the basis of polished surfaces or facets. Most exhibit flat working surfaces. A few exhibit striations related to tool sharpening, but the deep grooves associated with the sharpening of bone, antler, or stone tools are absent (House 1975). Coarse-grained metavolcanic or unidentified stone was used for eight specimens; an additional one is basalt; two are quartzite; and four are split quartz pebbles. One specimen (Cat. No. 169-163) is a cylindrical quartz pebble with four facets worn at one end (Fig. 40c).

This tool category may be under-represented at 31Dh234 because of the difficulty of discerning use wear on quartz, and because analysis of cobbles involved only macroscopic examination. A number of split quartz pebbles exhibit extremely smooth edges and dorsal surfaces, but are not included in this category because no other signs of abrasion were visible. Nine abraders were recovered from site Surface and Plowzone contexts, four were recovered from Level 2, and one each from Level 3 and Fea. 5.

MANOS

Five manos, or hand-held grinding stones, were identified by the presence of at least one flat surface produced by grinding. Three specimens are of quartz, one is metavolcanic, and one is of an unidentified material. While one specimen was recovered from the site Surface, two were recovered from Level 2, one from Level 3, and one from Fea. 12.

METATES

Metates or grindstones are also characterized by one or more flat surfaces worn or polished from grinding. Four of the five specimens identified at 31Dh234 (some fragmentary) are of metavolcanic material, with the exception being one rhyolite metate. Distribution was similar to that for manos; one was a Surface find, two were from Level 2, one was from Level 3, and one was from Fea. 12.

ANVILS or NUTTING STONES

Six flat slabs exhibiting signs of pecking or abrasion were placed in this category. One specimen is of quartz, and the remaining five are of metavolcanic or unidentified coarse-grained material (Fig. 40d). One was recovered from the site Plowzone, three were from Level 2, one was from Level 3, and one was from Fea. 9.

GROUND STONE AXE or CELT

In addition to the six flaked axes and celts described above, one ground metavolcanic axe or celt bit was recovered from 31Dh234 (Fig. 39a). This surface find displays a lateral break which terminates the blade approximately 7.0 cm from the working edge of the tapered bit.

POLISHED STONE ATLATL HANDLE

A cross-shaped object of polished slate (Cat. No. 128-168) was recovered from the base of Plowzone in Excav. Unit 5, and is identified as an atlatl handle (Joffre Coe, personal communication 1988). This artifact is 96.6 mm long, and the top of the vertical shaft is rounded. Both the horizontal "arms" and vertical shaft are curved forward. The back is slightly concave, and two 5.0 mm holes were drilled for attachment. One is drilled at an angle from the base, emerging at the back 5.5 mm from the base itself. The second hole, now broken, is located where the horizontal "arms" intersect the vertical shaft. Worn, criss-cross lines (X's) emphasize the junction of the horizontal and vertical elements, and small X's are carved on the ends of the "arms" as well (Fig. 41).

Four similar banded slate atlatl handles, described as "birdstones," have been reported from North Carolina counties (Buncombe, Iredell, Moore, and Mecklenberg) by Townsend (1959:565, Plate 230). Colors differ slightly, with the Moore County specimen a reddish-purple and the Mecklenberg County item a reddish-gray. The Buncombe County specimen bears a striking overall resemblance to the one from 31Dh234, and the Moore County specimen is drilled at the base, as is the one from 31Dh234. Townsend reports that similar pieces have been found in eastern Tennessee (Townsend 1959:566).

A similar, but slightly larger specimen (length 123.0 mm) has been recorded in Beaufort County, North Carolina (Joffre Coe, personal communication 1988). It is also made of polished black slate, although the horizontal and vertical elements are straight, not curved. The attachment holes are in the same positions, and the upper hole is broken just as in the specimen from 31Dh234. Examination of a cast from the Beaufort County atlatl handle reveals a difference in decoration. The two sides of the vertical shaft below the "arms" are engraved with fine lines depicting a strip of braided or woven fabric with loose, fringe-like ends.

Flake and Pebble Tools

Utilized flakes and retouched flakes are generally considered expedient flake tools. More specialized forms of flake tools present at 31Dh234 include gravers, perforators, burins, and spokeshaves (Table 10).

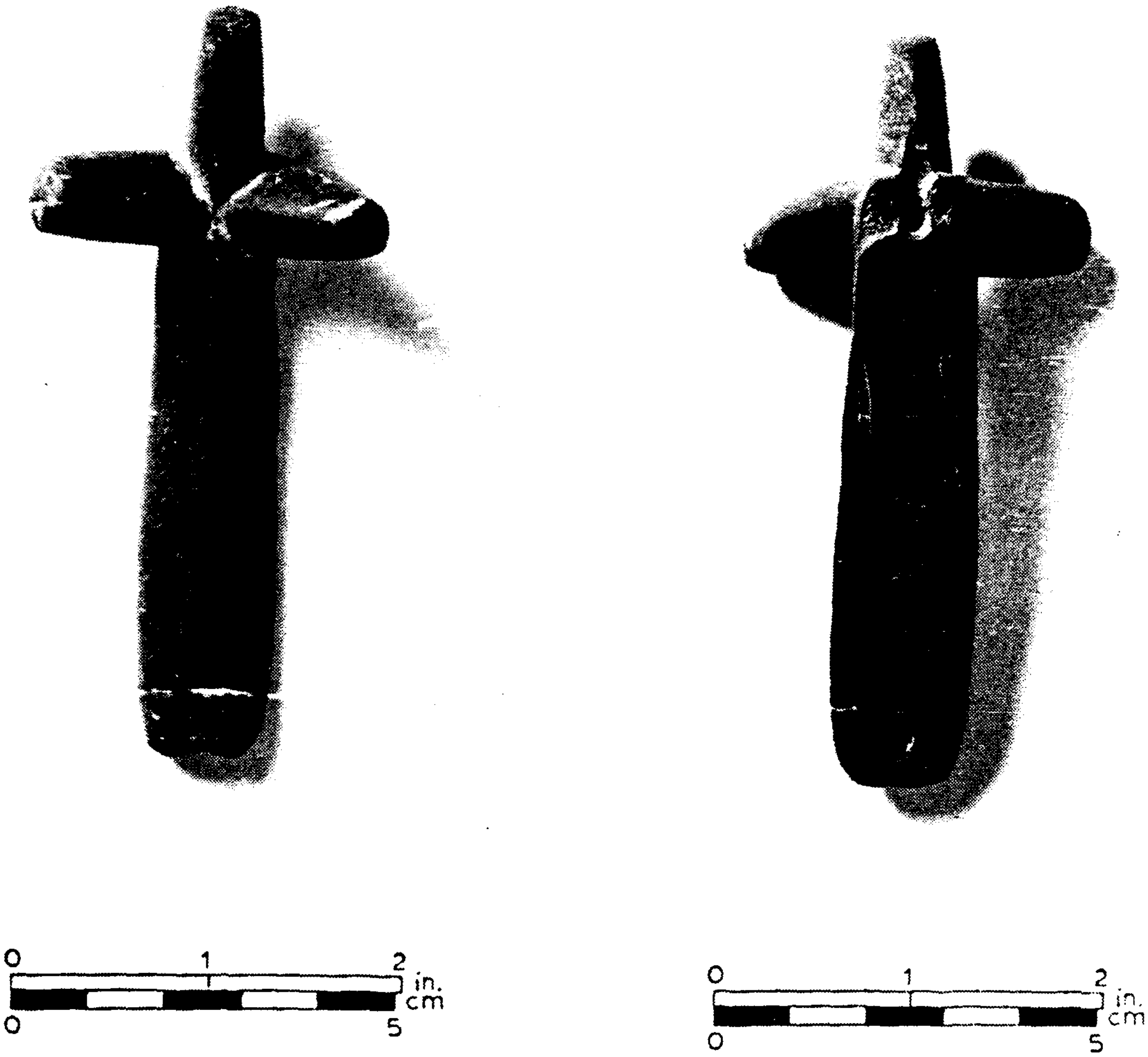


Figure 41a and b.   Front and back views of polished slate atlatl handle.

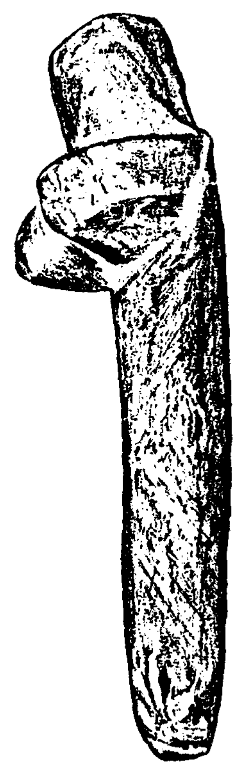


Figure 41c. Side view of polished slate atlatl handle.

TABLE 10

Distribution of Flake Tools by Raw Material, 31Dh234

	Rhyolite	Quartz	Crystal Quartz	Other	TOTAL
Utilized Flakes	204	28	11	11	254
Retouched Flakes	48	5	6	6	65
Gravers	21	10	3	0	34
Perforators	18	2	0	0	20
Spokeshaves	14	1	0	1	16
Blades	13	5	0	0	18
Burins	1	1	0	1	3
Pebble Tools	0	28	0	0	28

Examination of tools and debitage shows that an unexpected quantity of quartz or quartzite pebbles were being used extensively as a raw material source.

UTILIZED FLAKES

The largest group of expedient flake tools at 31Dh234 consists of unmodified flakes, which were used for a set of tasks and then discarded. The most common types of use wear visible macroscopically are small flake removals from the dorsal side of the working edge, along with striations or polish (Fig. 42h, 42i, 42l). In dealing with plowzone materials, however, it is difficult to distinguish intentional flaking from natural or plow-made modifications.

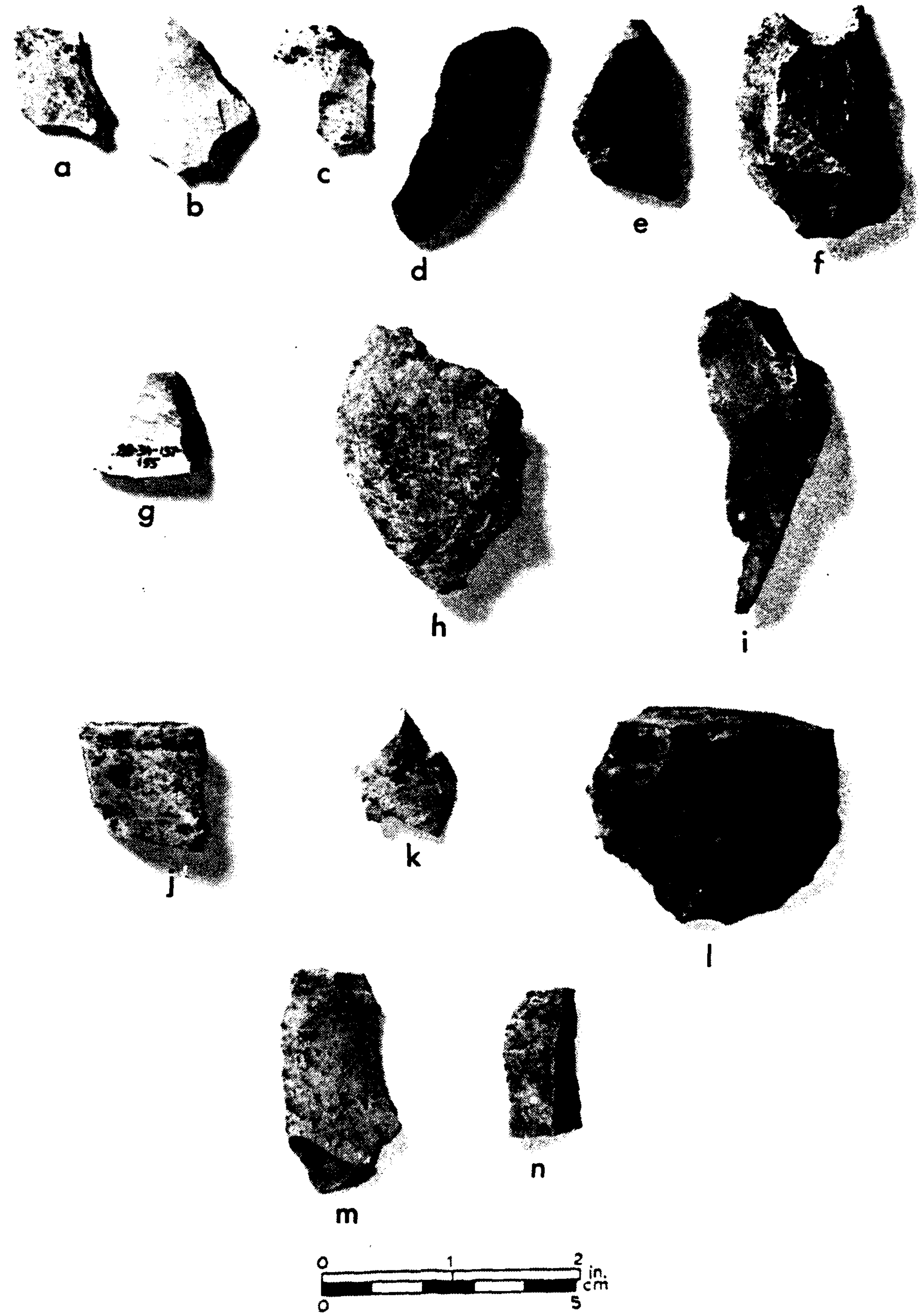
A total of 254 flakes were identified as utilized flakes (Table 11), primarily on the basis of edge damage. As with most other artifact categories, rhyolite is the primary raw material used, accounting for 80% of the utilized flakes. Other raw materials represented include quartz (11%), crystal quartz (4%), and other types (4%).

TABLE 11

Distribution of Utilized and Retouched Flakes, 31Dh234

	Utilized Flakes	Retouched Flakes
Plowzone	151 (59%)	38 (58%)
Level 2	59 (23%)	12 (18%)
Level 3	22 (9%)	10 (15%)
Features	22 (9%)	5 (8%)
TOTAL	254	65

Figure 42. Retouched and utilized flake tools from 31Dh234.
a. Retouched flake (Cat. No. 146-155B); b. Retouched flake (Cat. No. 116-155B); c. Retouched flake (Cat. No. 94-155A); d. Retouched flake (Cat. No. 156-155G); e. Retouched flake (Cat. No. 144-155D); f. Retouched flake (Cat. No. 144-155A); g. Retouched flake (Cat. No. 137-155); h. Utilized flake (Cat. No. 148-155C); i. Utilized flake (Cat. No. 164-155D); j. Spokeshave (Cat. No. 109-155L); k. Spokeshave (Cat. No. 168-155F); l. Utilized flake (Cat. No. 168-155A); m. Blade (Cat. No. 115-156B); n. Blade (Cat. No. 144-156A).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RETOUCHED FLAKES

This category differs from the previous one by including evidence of retouch on flakes, generally indicated by regular flake scars more than 2.0 mm in length (Fig. 42a through 42g). Only 65 flakes were placed in this category (Table 11). Rhyolite was used for 74% of the retouched flakes, followed in frequency by quartz (12%), crystal quartz (8%), and other materials (6%) (Table 10).

GRAVERS

This category of flake tool features short, thick, projections for incising or slotting hard materials, such as wood or dry bone (Fig. 36j, 36k). Of the 34 specimens identified at 31Dh234, 21 (62%) are of rhyolite, 10 (29%) are of quartz, and 3 (9%) are of crystal quartz. The spatial distribution reflects Plowzone recovery of 13 specimens (38%), nine specimens (26%) from Level 2, six (18%) from Level 3, and six (18%) from Feas. 7 and 12.

PERFORATORS

Perforators have longer, more slender points for piercing material (Fig. 36h, 36i). Flake perforators generally lack the length and thickness possessed by bifacially flaked awls or drills. Of the 20 flake perforators recovered from 31Dh234, 18 (90%) are of rhyolite, while the other two (10%) are of quartz.

SPOKESHAVES

Sixteen spokeshaves were identified by the presence of a concave surface along a flake edge, often showing signs of polish or wear (Fig. 37l, 42j, 42k). Fourteen of the 16 specimens from 31Dh234 are of rhyolite, one is of quartz pebble, and one is of an unidentified material.

BURINS

Three specimens were identified on the basis of thick, chisel-like edges (Fig. 36l). Each is made of a different raw material: rhyolite, quartz, and jasper.

BLADES

The 18 blades from 31Dh234 tend to be small in size, and many specimens exhibit a median ridge on the dorsal face (Fig. 42m, 42n). Thirteen (72%) are of rhyolite, and the remaining five (28%) are of quartz. Fifteen blades were recovered from the site Plowzone, while the remaining three were recovered from Level 2 (Excav. Units 4 and 7) and Fea. 9.

PEBBLE TOOLS

Between 20 and 40 tools from 31Dh234 are made from quartz pebble segments (Fig. 37n, 37o). Because of the difficulty of detecting macroscopic edge wear on quartz, the number of tools from this material

may actually be larger than reported. Abraders, utilizing the rough face of the broken pebble, are the most numerous pebble tool, but most categories of flake tool are represented, and are discussed under the pertinent sections above.

Fire Cracked Rock

A total of 87.3 kg of fire cracked rock was recovered from 31Dh234 (Table 12). This category includes both fire cracked and fire-reddened

Table 12 Distribution of Fire-Cracked Rock by Unit and Level and by Feature (in g).

UNITS AND LEVELS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Plow Zone	2005	2800	1332	1857	1108	882	360	929	7154	4539	5606	822	834	2625	575	497	1466
Level 2	1887	10,644	--	2221	610	724	353	1037	9332	1496	3650	500	538	--	--	--	--
Level 3	390	4775	--	476	--	123	--	18	533	112	74	4	--	--	--	--	--

FEATURES

1	2	3	4	5	6	7	8	9	10	11	12	13	14
46	0	120	47	18	1634	49	0	7588	41	0	1072	0	2879

rock, which are traditionally associated with hearths and fire pits. Both quartz and metavolcanic rocks are included in this category, with ratios often varying between units and levels. A substantial number of large rhyolite chunks were also burnt. Together with the number of fire-reddened quartz cobbles which were either unmodified or showed the removal of only a few flakes, it is possible that raw material for tools was being thermally altered in addition to the use of hot rocks for cooking.

Debitage

As the most likely artifact category to remain in original context, debitage is of great utility in identifying tool manufacturing processes and interpretation of on-site activities and technological behavior. The debitage categories used in the 31Dh234 analysis reflect various stages of tool manufacture. Chunks and cores indicate procurement preferences; primary and other flakes represent the initial stages of tool manufacture; and thinning (secondary and tertiary) flakes are associated with the final stages of biface manufacture, use, and rejuvenation.

The debitage from unit excavations numbered 10,221 items (Table 13). Of this total, the largest category consists of secondary flakes (54%), followed by "Other Flakes" (23%), tertiary flakes (10%), primary flakes (7%), and chunks and cores (5%). These proportions suggest that the initial stages of tool manufacture were not as frequent as the finishing and rejuvenation stages, which are characterized by the removal of secondary and tertiary flakes.

TABLE 13

Distribution of Debitage by Type, Material, and Location
31Dh234

	Plowzone	Level 2	Level 3	Features
Cores and Chunks (N=485)				
Rhyolite	66	16	11	12
Quartz	254	14	7	5
Crystal Quartz	60	7	3	2
Jasper	12	0	0	0
Other	4	6	2	4
Subtotal	396 (81%)	43 (9%)	23 (5%)	23 (5%)
Primary Flakes (N=775)				
Rhyolite	360	153	59	76
Quartz	84	9	8	1
Crystal Quartz	10	0	0	0
Jasper	4	2	0	1
Other	4	2	1	1
Subtotal	462 (60%)	166 (21%)	68 (9%)	79 (10%)
Secondary Flakes (N=5490)				
Rhyolite	2758	815	434	425
Quartz	472	47	23	28
Crystal Quartz	236	54	24	27
Jasper	77	2	0	1
Other	38	13	7	9
Subtotal	3581 (65%)	931 (17%)	488 (9%)	490 (9%)

(TABLE 13)

	Plowzone	Level 2	Level 3	Features
Tertiary Flakes (N=1076)				
Rhyolite	579	146	97	87
Quartz	83	5	0	2
Crystal Quartz	46	4	8	5
Jasper	9	0	0	0
Other	4	0	0	1
Subtotal	721 (67%)	155 (14%)	105 (10%)	95 (9%)
Other Flakes (N=2395)				
Rhyolite	960	286	139	199
Quartz	244	65	17	18
Crystal Quartz	89	11	0	4
Jasper	10	0	0	0
Other	205	52	36	60
Subtotal	1508 (63%)	414 (17%)	192 (8%)	281 (12%)
TOTAL N=10,221	6668 (65%)	1709 (17%)	876 (9%)	968 (9%)

5.5 Lithic Raw Material Use Patterns

The major raw materials represented in the 31Dh234 lithic assemblage are rhyolite, quartz, and crystal quartz, with lesser usage indicated for jasper, basalt, and chert (see Table 3). With the possible exception of chert, all of these materials are available in the nearby Carolina Slate Belt (Stuckey 1965). The raw material most frequently used at 31Dh234 was rhyolite, with quartz a distant second choice. This pattern of raw material use is found at a number of other North Carolina piedmont sites, even allowing for differences in the definition of raw material types. More than 97% of the specimens in a Haw River cache of bifaces and flake blanks consisted of felsite, a general term denoting fine-grained igneous materials, including rhyolite (Claggett and Cable 1982:506).

At the Donnaha site (31Yd9), a Late Woodland village on the Yadkin River in the northwestern piedmont of North Carolina, 96% of the 1,771 projectile points were manufactured from felsite; quartz, argillite, and jasper each constituted 1% of this assemblage. Although felsite was a non-local raw material, similarly high percentages were present in the debitage at this site (Woodall 1984:82, 102).

Summaries of lithic raw material use in the Falls Lake area are available from the National Register Nomination/Inventory Form for Rolling View Archaeological District (Hargrove et al. n.d.: Appendix 2). This district contains 42 prehistoric sites ranging in occupation from Early Archaic to Late Woodland. Separate tabulations were made for the

District and the remainder of the Falls Lake recreational area, as summarized in Tables 14 and 15 below (from Hargrove et al. n.d.: Appendix 2, 2.8-2.10).

TABLE 14

Lithic Materials at Rolling View District

Raw Material	Projectile Points #	Projectile Points %	Tools #	Tools %	Cores #	Cores %	Debitage #	Debitage %	Total #	Total %
Rhyolite	89	62	439	54	46	34	3507	59	4081	58
Quartz	13	9	183	23	63	46	1179	20	1438	20
Porphyry	22	15	122	15	13	10	885	15	1042	15
Gray Tuff	2	1	7	1	2	1	55	1	66	0
Other	18	13	57	7	12	9	307	5	394	6
TOTAL	144	100%	808	100%	136	100%	5933	100%	7021	100%

TABLE 15

Lithic Materials at Falls Lake Sites
Excluding Rolling View District

Raw Material	Projectile Points #	Projectile Points %	Tools #	Tools %	Cores #	Cores %	Debitage #	Debitage %	Total #	Total %
Rhyolite	50	49	53	38	1	2	420	22	524	24
Quartz	25	25	54	39	39	95	1312	70	1430	66
Porphyry	14	14	18	13	1	2	89	5	122	6
Gray Tuff	2	2	0	0	0	0	14	1	16	0
Other	10	10	13	9	-	0	36	2	59	3
TOTAL	101	100%	138	100%	41	100%	1871	100%	2151	100%

The percentage of rhyolite (58%) for the Rolling View District is lower than that from 31Dh234 (74%), but would be very close if the figures for porphyry and rhyolite were combined, as was done during analysis of the 31Dh234 materials. Hargrove et al. (n.d.) note that while rhyolite is the predominant raw material utilized at Rolling View,

the remaining upland areas around Falls Lake contained primarily quartz artifacts. It was hypothesized that the geographic distribution of these lithic raw materials caused this observed difference in raw material use (Hargrove et al. n.d.: Appendix 2).

In summary, while rhyolite is the preferred raw material at several North Carolina piedmont sites, upland sites in the Falls Lake vicinity reflect two patterns of lithic usage. The upland Rolling View district and 31Dh234 exhibit their occupants' preference for rhyolite over quartz, while quartz was more heavily utilized at upland Falls Lake sites outside the Rolling View district. Quartz is the raw material that is most frequently observed in other piedmont regions of the southeastern United States, especially South Carolina and Georgia. In a study of raw material usage in the South Carolina piedmont, where 80% of the region-wide sample of 1,027 temporally diagnostic hafted bifaces were made of quartz. In a time span with phases ranging from Paleo-Indian to Mississippian, the Early Archaic Kirk phase and the Middle Archaic Stanly phase were the only two where more than 50% of the hafted bifaces were made of non-quartz material (Canouts and Goodyear 1985:190).

At Rucker's Bottom in piedmont Georgia, excavations produced 247 diagnostic hafted bifaces and hafted biface fragments associated with the Early Archaic Palmer phase to the Mississippian phase; of these, 80% were quartz, 10% crystal quartz, 9% metavolcanic, and 2% chert (Anderson and Schuldenrein 1985:264). At Gregg Shoals, quartz was heavily used as a raw material in all levels, followed by crystal quartz, with chert appearing in significant amounts only in the lowest levels (Tippitt and Marquardt 1984: Fig. 7-28).

Table 3 indicates that at 31Dh234, only two artifact classes -- Unifaces and Pebble Tools -- reflect a preference for quartz relative to other raw material choices. Both quartz and crystal quartz were more often used for unifacial scrapers (Table 8), and all of the pebble tools were made of quartz (Table 10).

The presence of non-local raw materials at a site has been interpreted as a sign of high mobility (Binford 1979; Goodyear et al. 1979). Given the local availability of materials in relation to 31Dh234, mobility does not seem to have been a factor in obtaining access to tool-manufacturing resources.

Neither Coe (1964) nor Claggett and Cable (1982) systematically address or tabulate lithic raw material distributions by temporal-cultural periods, although this is noted in some cases. For example, at 31Dh8, "three of the six Late Woodland [Caraway] arrow points were made of quartz, contrary to the more frequent selection of metavolcanic materials for point construction" (Claggett and Cable 1982:593).

Of the 155 hafted bifaces recovered from 31Dh234, 115 (74%) are rhyolite, 33 (21%) are quartz; the other 5% consist of jasper, basalt, and chert. Considered temporally, 95% of the Archaic hafted bifaces are rhyolite, and 3% are quartz or quartzite. A distinct shift in raw material use is evident by the Woodland period, when only 59% of the hafted bifaces are rhyolite and 34% are quartz.

The different ratios of rhyolite to quartz in Archaic and Woodland assemblages may result from differences in settlement systems, technology, or usage priorities. The brittleness and lack of homogeneity in quartz make it a relatively difficult medium from which to fashion large, Archaic bifaces by percussion flaking (Boudreau 1981). However, quartz is ubiquitous to the piedmont in cobble or pebble form, as well as in veins. Quartz flake blanks can be worked into small triangular or stemmed hafted bifaces with fair consistency, which may account for its increased use in later periods (Blanton and Sassaman n.d.:113).

Both samples of Falls Lake projectile points (Tables 16, 17) show a distinct preference for rhyolite during all temporal-cultural periods, with only the Rolling View samples reflecting a substantial increase in quartz utilization for Woodland points (Hargrove et al. n.d.: Appendix 2).

TABLE 16

Projectile Points by Lithic Material and Period, Rolling View Archaeological District

Raw Material	E. Archaic		M. Archaic		L. Archaic		Woodland		Total	
	#	%	#	%	#	%	#	#	#	%
Rhyolite	13	62	25	58	2	14	10	45	50	50
Quartz	1	5	14	32	4	29	6	27	25	25
Porphyry	3	14	2	5	7	50	2	9	14	14
Other	4	19	2	5	1	7	4	18	11	11
	--		--		--		--		--	
TOTAL	21	100%	43	100%	14	100%	22	100%	100	100%

TABLE 17

Projectile Points by Lithic Material and Period, Falls Lake Sites Excluding Rolling View District

Raw Material	E. Archaic		M. Archaic		L. Archaic		Woodland		Total	
	#	%	#	%	#	%	#	#	#	%
Rhyolite	15	71	46	67	10	33	18	75	89	62
Quartz	2	9	6	9	3	10	2	8	13	9
Porphyry	3	14	8	12	10	33	1	4	22	15
Other	1	5	8	12	7	23	3	12	19	13
	--		--		--		--		--	
TOTAL	21	100%	68	100%	30	100%	24	100%	143	100%

Lithic raw material types are tabulated in a single table of the Siouan Project report (Dickens et al. 1987:236), showing percentages of 14 lithic materials in the debitage from the Wall, Fredricks, and Mitchum sites. In sequence, these three sites span the period from A.D. 1500-1700, and are not temporally or culturally comparable to 31Dh234. This table is of interest, however, because it shows a temporal shift in the use of the four most heavily utilized raw materials, representing at least 10% of the debitage at any one site:

Raw Material Type	Wall %	Fredricks %	Mitchum %
Rhyolite	5.8	7.4	14.1
Chert, non-local	0.4	0.7	15.6
Vein Quartz	34.2	14.5	22.1
Vitric Tuff	40.0	34.6	31.0

Here we see a steady decline in the use of vitric tuff, while both non-local chert and rhyolite usage increases over time. Vein quartz shows a variable pattern of use.

The ratios of raw material for debitage category also show variation when sub-classes are considered separately (Table 18). Rhyolite constitutes 75% and quartz 14% of the debitage from 31Dh234. Ratios of rhyolite and quartz are very similar for the three types of flakes, and slightly less for other flakes. Chunks and cores form the one debitage class where quartz and crystal quartz reflect a frequency nearly three times as great as rhyolite. Numerous large chunks of rhyolite exhibit cracking and reddening from exposure to heat, and were cataloged as fire cracked rock. If these chunks were brought on-site as raw material for tools and discarded, or reused as cooking stones, this could explain the reversed ratio of rhyolite and quartz observed in this debitage class.

Except for minor variations in frequency, the order of raw materials is the same in all debitage categories, except for chunks/cores (Table 18). Frequency of raw materials within categories also declines with increasing horizontal depth from the Plowzone to Level 3 (Figs. 43 through 48). Interestingly, the number of "Other" lithic materials is slightly higher in features than in either Level 2 or Level 3. Since only two features were identified as prehistoric cultural features, this variation in frequency may represent disturbance between levels, but this does not explain why the pattern is not reflected by the more numerous lithic raw materials.

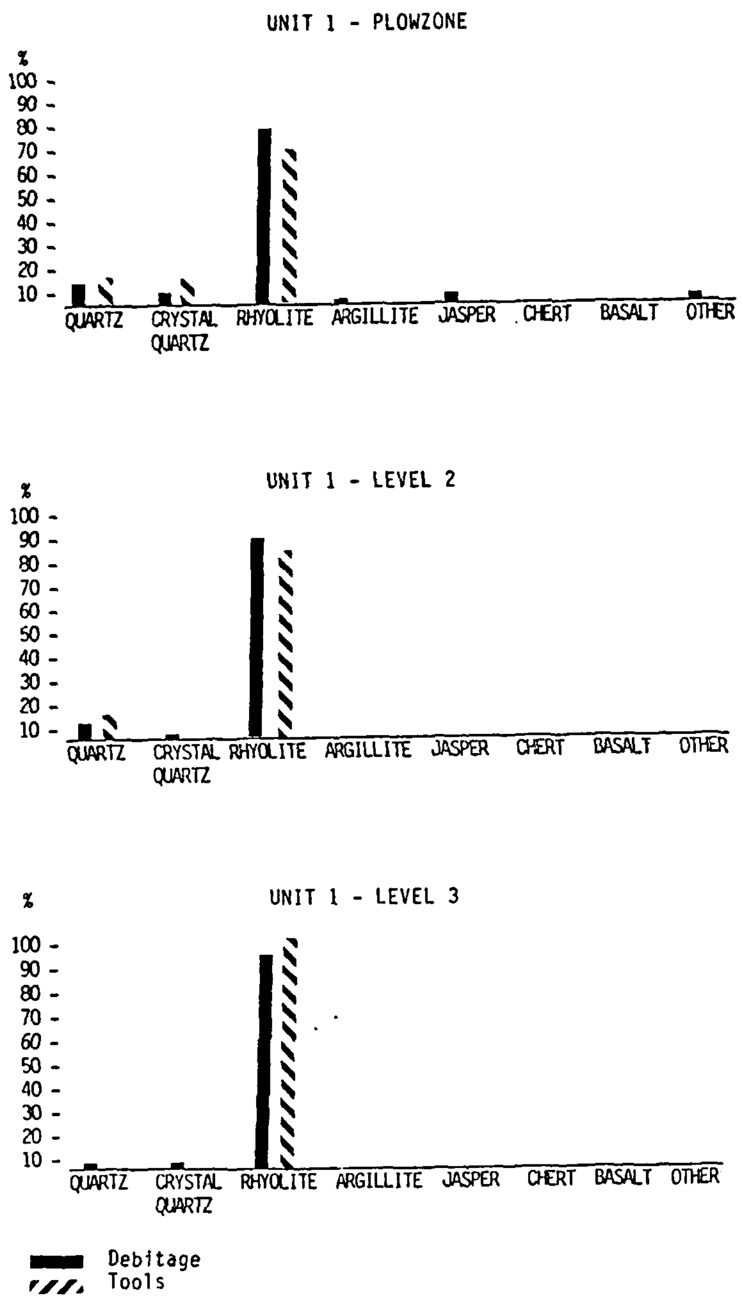


Figure 43. Debitage and tool frequency distribution by raw material, Unit 1.

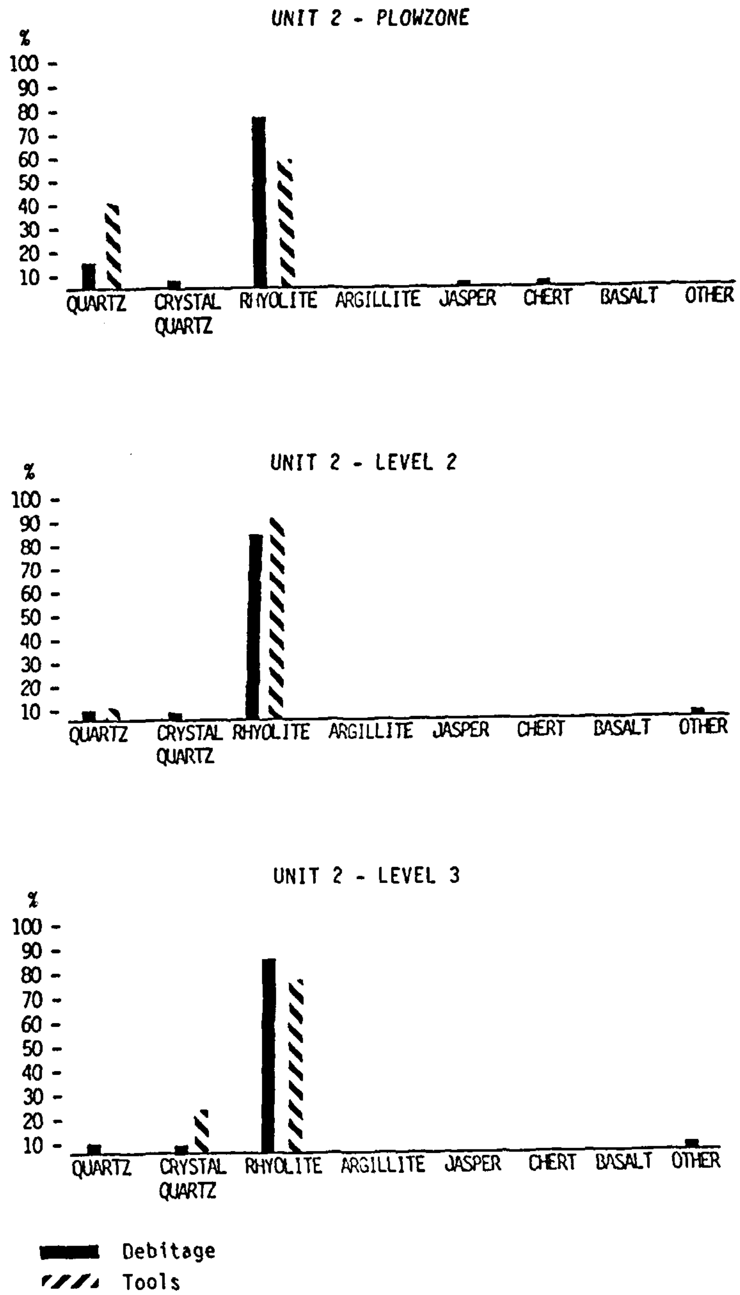


Figure 44. Debitage and tool frequency distribution by raw material, Unit 2.

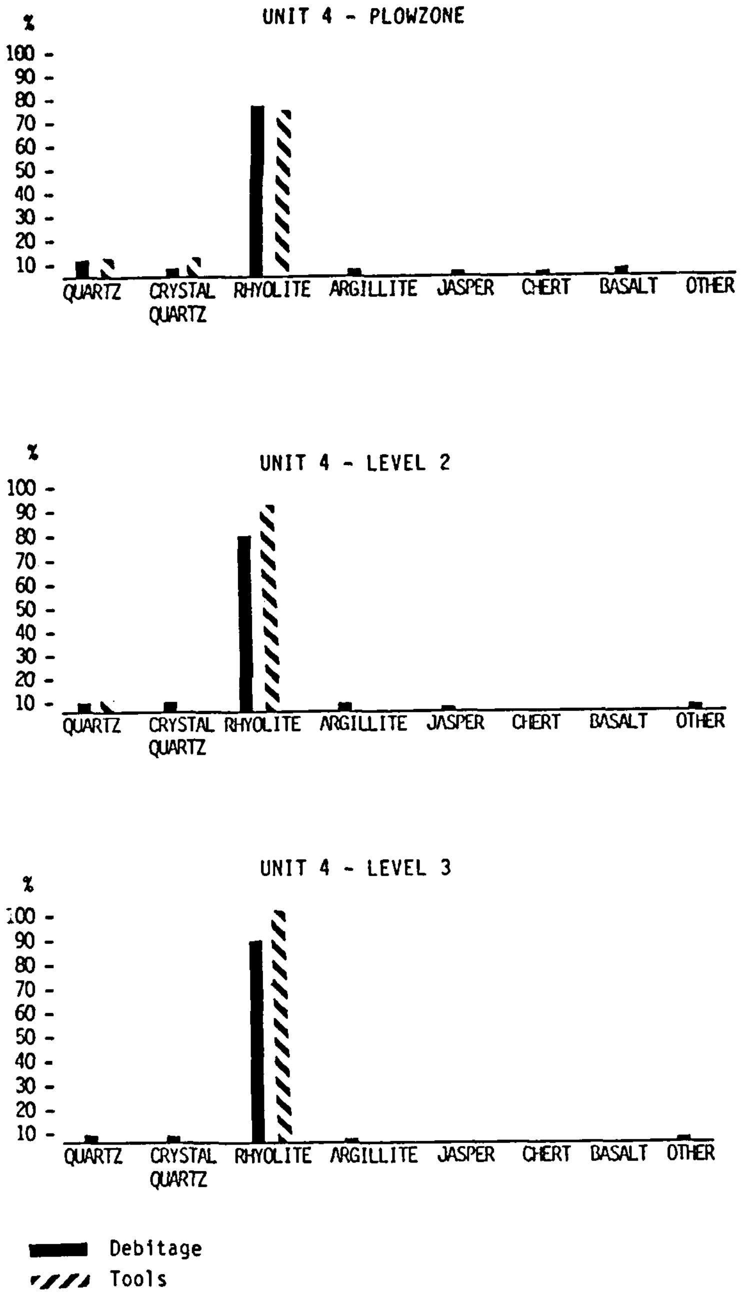


Figure 45. Debitage and tool frequency distribution by raw material, Unit 4.

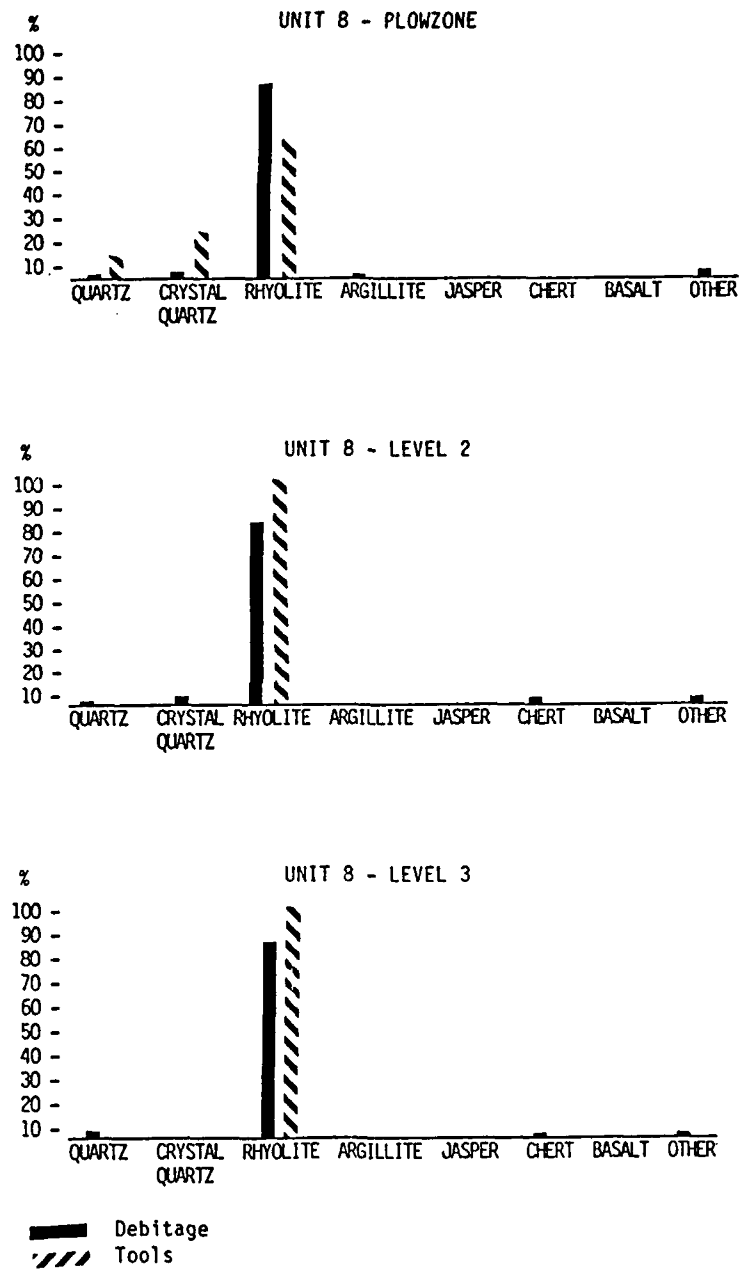


Figure 46. Debitage and tool frequency distribution by raw material, Unit 8.

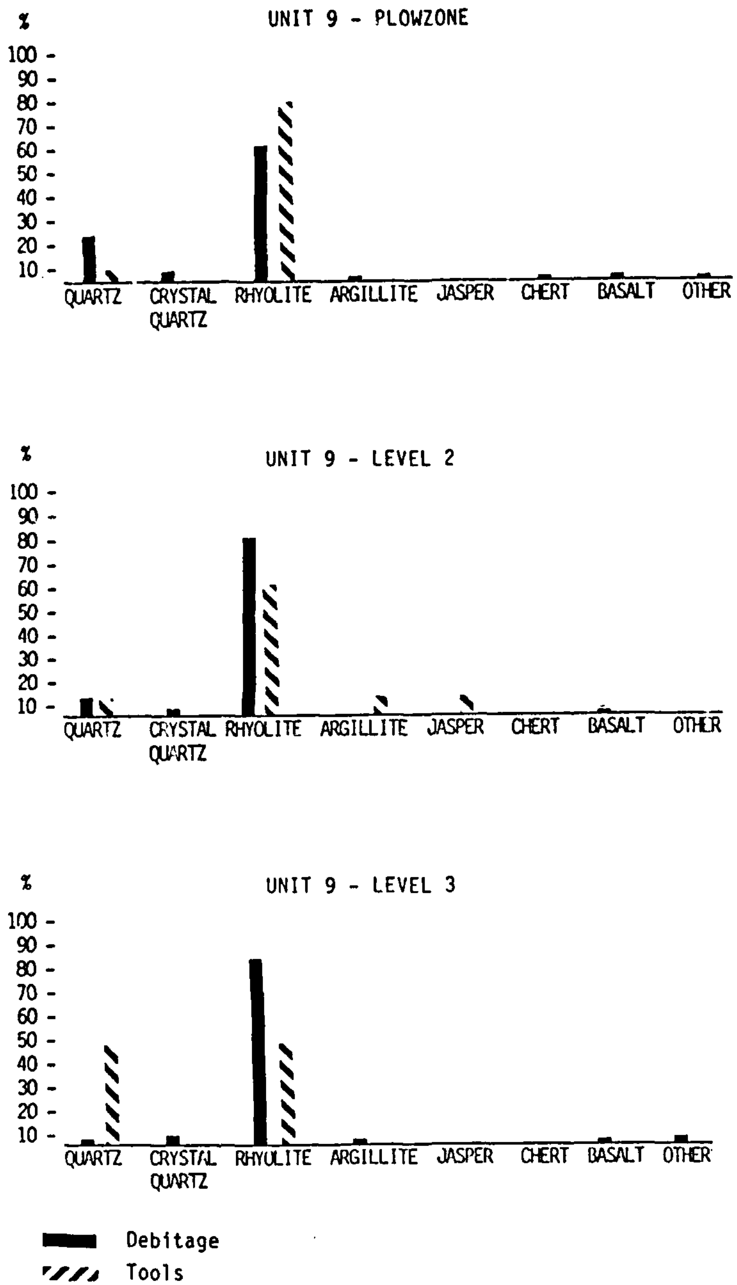


Figure 47. Debitage and tool frequency distribution by raw material, Unit 9.

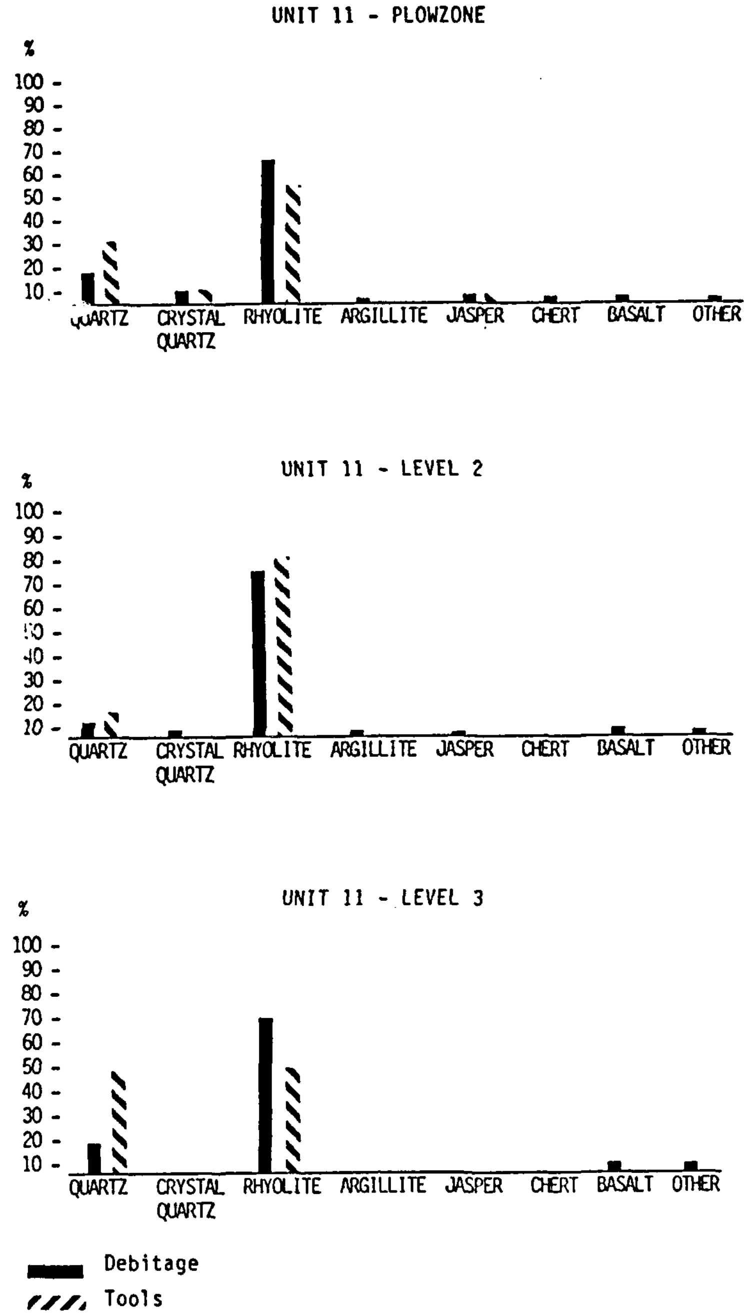


Figure 48. Debitage and tool frequency distribution by raw material, Unit 11.

TABLE 18

Frequency Distribution of Debitage Classes by Raw Material
31Dh234

	Rhyolite	Quartz	Crystal Quartz	Jasper	Other
Chunks/ Cores	105 (22%)	280 (41%)	72 (15%)	12 (2%)	16 (3%)
Primary Flakes	648 (84%)	102 (13%)	10 (1%)	7 -	8 -
Secondary Flakes	4432 (81%)	570 (10%)	341 (6%)	80 (1%)	67 (1%)
Tertiary Flakes	909 (84%)	90 (8%)	63 (6%)	9 -	5 -
Other Flakes	1584 (66%)	344 (14%)	104 (4%)	10 -	353 (15%)
All Debitage	7678 (75%)	1386 (14%)	590 (6%)	118 (1%)	449 (4%)

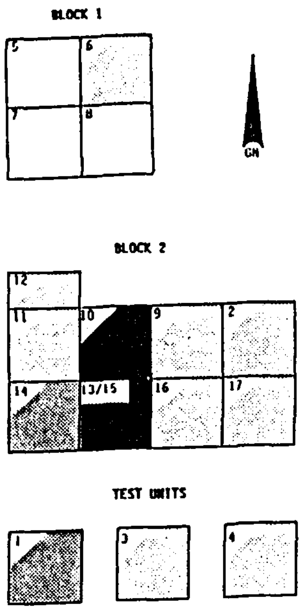
Hematite and Limonite

Hematite and limonite are red and yellow ores having a high iron content. They were ground and used by Native Americans for pigment and also in hide preparation (Anderson and Hanson 1988:275). Thirty-eight fragments of hematite and 13 fragments of limonite were recovered from 31Dh234. Excav. Unit 4 yielded the largest number of hematite fragments, with five in the Plowzone and five in Level 2. By provenience, 23 hematite fragments were recovered from Plowzone contexts, 13 from Level 2, one from Level 3, and one from Fea. 10. Eight of the 13 limonite fragments were recovered from the site Plowzone, with three from Level 2 and one each from Fea. 4 and Fea. 10.

5.6 Lithic Artifact Distribution Patterns

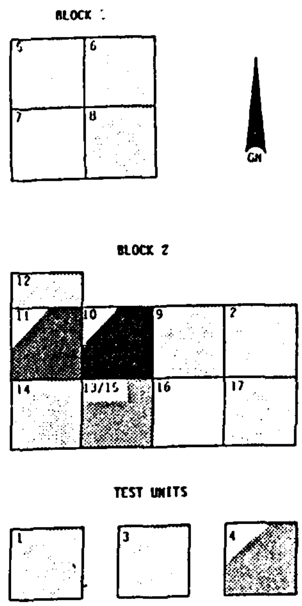
Site 31Dh234 contains discrete areas with distinctive patterns of artifact type distribution. Artifact density maps (Figs. 49 through 61) which depict debitage and artifact categories were generated to aid in distinguishing patterns of on-site usage. For purposes of comparison between excavation units, and between excavation units and surface collection samples, only the Plowzone level was mapped; Excav. Units 13 and 15 (1x2 meter units) were combined to provide area and volume equal to the 2x2 meter units.

Some horizontal separation of Archaic and Woodland occupations is indicated by the distribution of hafted bifaces. The greatest frequency



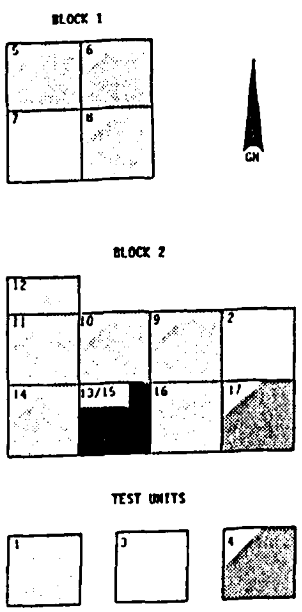
Archaic Hafted Bifaces
Key: = 1-2; =3-4;
= 8

Figure 49. Plowzone frequency distribution of Archaic hafted bifaces.



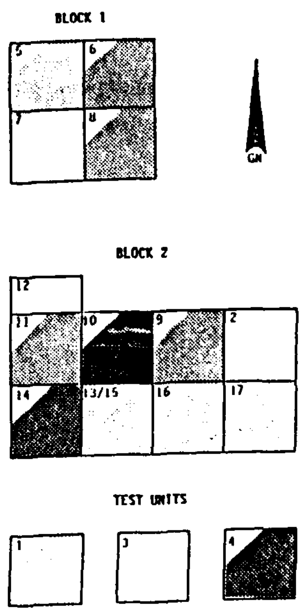
Woodland Hafted Bifaces
Key: = 1-5; =6-10;
= 11-15; =16+

Figure 50. Plowzone frequency distribution of Woodland hafted bifaces.



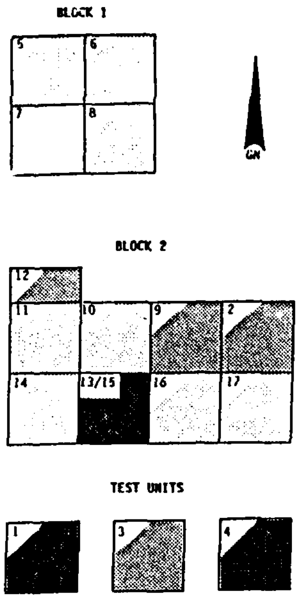
Unifaces
Key: = 1-3; = 4-5;
= 7

Figure 51. Plowzone frequency distribution of unifaces.



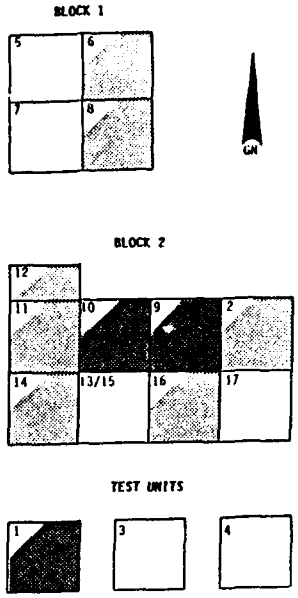
Bifaces
Key: = 1-4; = 5-8;
= 9-12; = 13-16

Figure 52. Plowzone frequency distribution of bifaces.



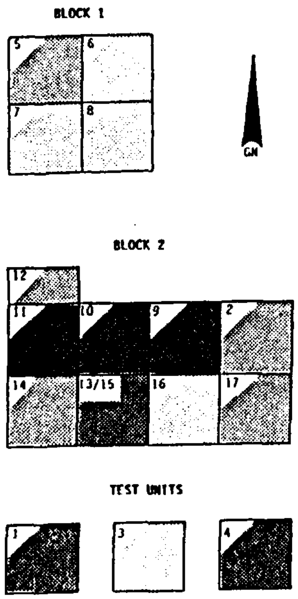
Retouched/Utilized Flakes
Key: = 1-9; = 10-19; = 20+

Figure 53. Plowzone frequency distribution of retouched/utilized flakes.



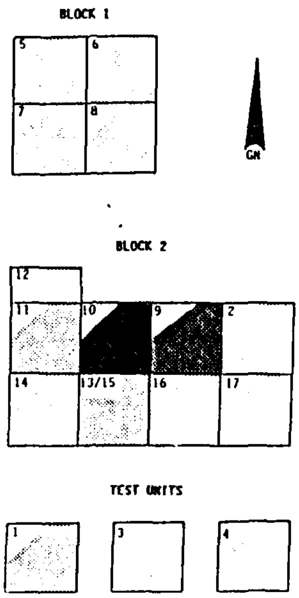
Pebble Tools
Key: = 1-5; = 6-10

Figure 54. Plowzone frequency distribution of pebble tools.



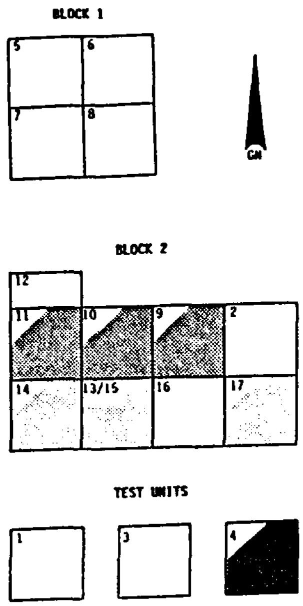
Rhyolite Debitage
Key: = 1-149; = 150-299; = 300-449; = 450+

Figure 55. Plowzone frequency distribution of rhyolite debitage.



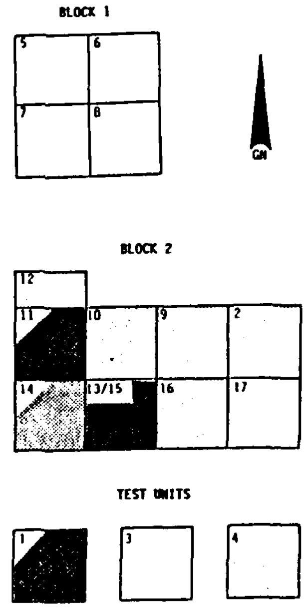
Quartz Debitage
Key: = 1-74; = 75-149; = 150-224; = 225+

Figure 56. Plowzone frequency distribution of quartz debitage.



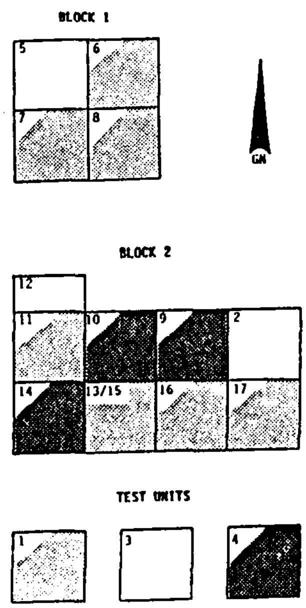
Basalt Debitage
Key: = 1-9; = 10-19; =20+

Figure 57. Plowzone frequency distribution of basalt debitage.



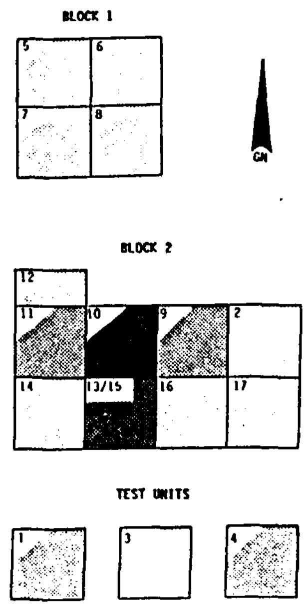
Jasper Debitage
Key: = 1-9; = 10-19; = 20+

Figure 58. Plowzone frequency distribution of jasper debitage.



Argillite - Debitage
Key: = 1-9; = 10+

Figure 59. Plowzone frequency distribution of argillite debitage.



Crystal Quartz Debitage
Key: = 1-19; = 20-39; = 60-79; = 80+

Figure 60. Plowzone frequency distribution of crystal quartz debitage.

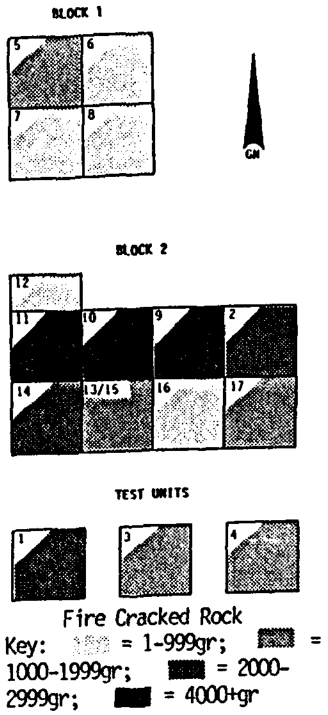


Figure 61. Plowzone frequency distribution of fire cracked rock.

of Archaic hafted bifaces is in Block 2, Excav. Units 10 and 13/15, followed by Excav. Units 15 and 1 (Fig. 49). Steatite bowl sherds (see Sec. 6.1) were densest in Excav. Units 4 and 10, partially confirming the location of Archaic occupation.

Woodland hafted biface frequency was also highest in Excav. Unit 10, followed by Excav. Units 11, 13/15, and 4 (Fig. 50). In Block #1, Archaic hafted bifaces are present in one of the four units, and Woodland hafted bifaces are present in three of the four units. With the exception of Excav. Unit 16, where no Woodland hafted bifaces are present, both Archaic and Woodland occupations are represented in each of the remaining excavation units.

Unifaces are most numerous in Excav. Units 13/15, followed by Excav. Units 17 and 4; however, these items are present in all but three of the excavated units (Fig. 51). On the basis of their morphology and level of workmanship, the unifaces recovered from 31Dh234 appear to be expendable-type tools, the use of which may have continued into Woodland phases. Bifaces are found in the same units as the unifaces, suggesting that both tool types were used in similar or complementary activities, perhaps hide working (Fig. 52).

In Block #1, retouched and utilized flakes reflect density patterns most like those of Woodland hafted bifaces and unifaces, but Block #2 distributions more nearly match those of Archaic hafted bifaces (Fig. 53). Pebble tools are densest in Excav. Units 9 and 10, as are bifaces (Fig. 54), suggesting a possible use in the preparation of platforms during biface manufacture. Pebble tools also correlate spatially with fire cracked rock, making food preparation an alternative use for these items.

As observed in the analysis of hafted biface distribution, there is a definite shift from the use of rhyolite during the Archaic period to heavier quartz usage during the Woodland period. Examination of the rhyolite and quartz debitage (Figs. 55, 56) indicates greater correspondence between quartz and Woodland hafted bifaces than between rhyolite and Archaic hafted bifaces. This is to be expected, since rhyolite continued to be used for 59% of Woodland hafted bifaces. Basalt debitage (Fig. 57) corresponds more closely to Woodland hafted biface distribution than to Archaic hafted biface distribution, but jasper (Fig. 58) and argillite (Fig. 59) debitage do not show great similarity in distribution to the hafted bifaces of either period. Nor does crystal quartz (Fig. 60) appear to correlate more with either period.

As one could expect from plowzone contexts, fire cracked rock was recovered from all excavation units, with the greatest concentration occurring in Excav. Units 9 - 11 (Fig. 61). Densities of fire cracked rock appear to correlate closely with rhyolite, quartz, and jasper debitage. This raises the possibility that fire cracked rock was being used for thermal alteration of raw material, rather than for hearths which could be interpreted as living areas. This tentative conclusion is supported by the fact that the site produced a large amount of fire cracked and discolored rhyolite, and most of the jasper debitage had been thermally altered.

In order to distinguish between tool manufacture and usage activities, Indices of Early Stage reduction (ER) and Biface Discard (BD) were calculated, using a modification of the method proposed by House and Ballenger (1976:96-98). The ER Index is determined by dividing the number of chunks and other flakes by the number of thinning flakes. The BD Index is determined by dividing the number of bifaces (including points and biface fragments) by the number of other flakes; however, for 31Dh234, this index was modified by using the number of hafted bifaces, bifaces, and preforms divided by the number of other flakes. A high value of BD would suggest a high degree of biface tool use, exhaustion, breakage, and discard vs. biface manufacture in the assemblage. A high value of ER would indicate the opposite.

Values for the indices are presented in Table 19 and Fig. 62. In each unit, tool categories from all levels were combined. Two sources of possible bias may skew interpretation of these indices. First, in six units (Excav. Units 3, 14, 15, 16 and 17) only the plowzone was excavated; in three units (Excav. Units 5, 7 and 13) two levels were excavated; and in eight units (Excav. Units 1, 2, 4, 6, 8, 9, 10 and 11) three levels were excavated. Second, in calculating the BD Index, the sum of bifaces was less than 10 in nearly one-half of the units (Excav. Units 3, 5, 6, 7, 8, 15, 16 and 17).

TABLE 19

Biface Discard (BD) and Early Stage Reduction (ER) Indices by Excavation Unit, 31Dh234

Excav. Unit	BD	ER
1	.07	.53
2	.07	.30
3	.23	.66
4	.25	.22
5	.10	.25
6	.31	.26
7	.06	.28
8	.07	.31
9	.07	.47
10	.18	.37
11	.16	.58
12	.09	.64
13	.09	.60
14	.10	.66
15	.17	.57
16	.17	.44
17	.11	.62

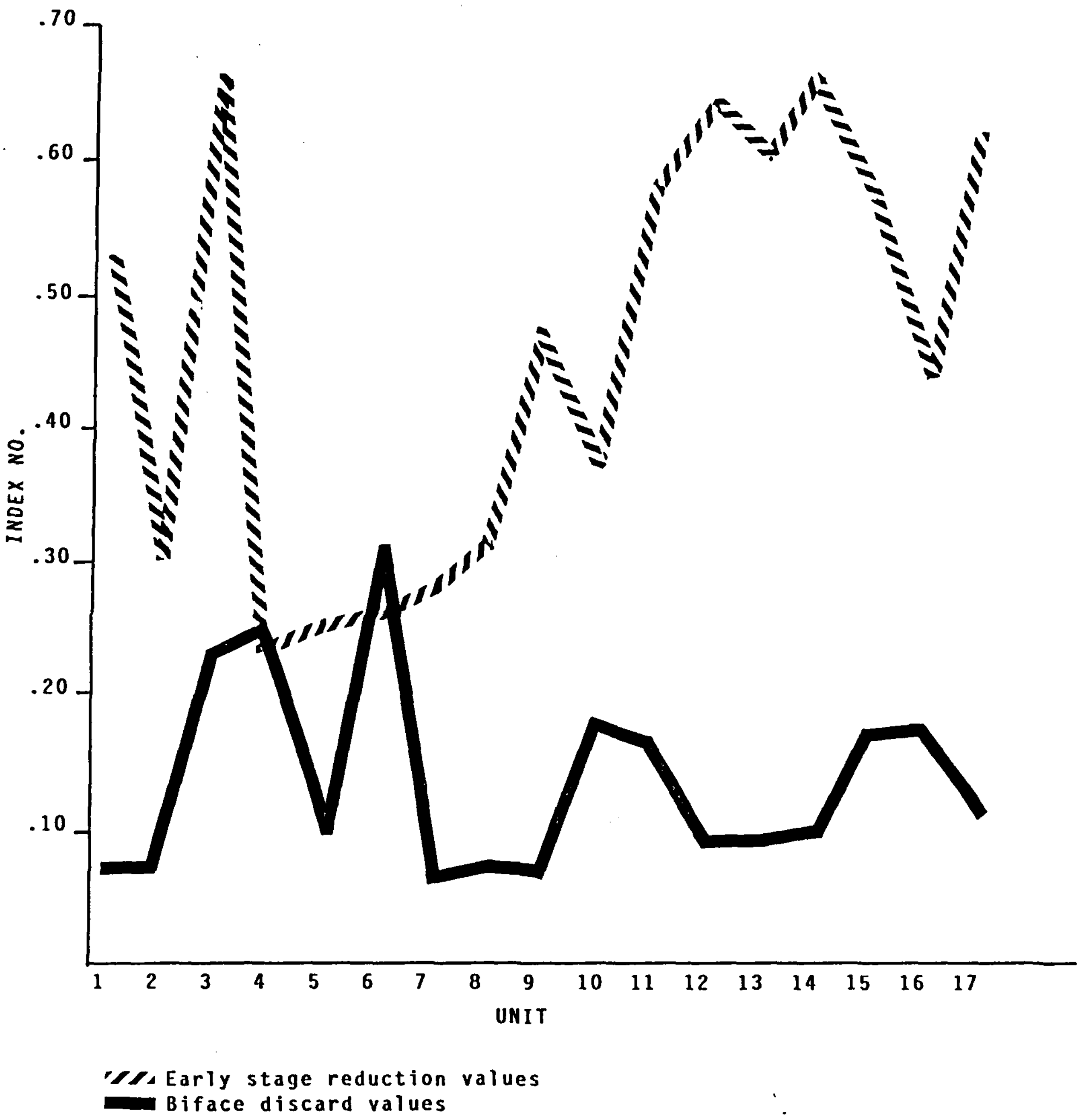


Figure 62. Biface discard and early stage reduction indices by excavation unit.

Fig. 62 indicates that a high BD Index (over .20) occurs in Excav. Units 3, 4 and 6; the latter two units exhibit BD indices higher than ER indices, suggesting that biface use was a more important activity than manufacture. Units with high ER indices (over 0.50) had correspondingly low BD indices in seven cases (Excav. Units 1, 10 - 15, 17) indicate manufacturing activity. Only Excav. Unit 3 had high values for both indices.

Another check on the relative value of plowzone comparisons is offered by a level breakdown of fire cracked rock. Table 12 indicates that units which produced the greatest quantity of fire cracked rock from plowzone contexts generally also produced large amounts in excavated contexts as well; the major exceptions to this trend occur in Excav. Units 7 and 12. In several cases (e.g., Excav. Units 2, 4, 8, 9), the amount of fire cracked rock in sub-plowzone proveniences exceeded the amount recovered from the Plowzone.

Dense and restricted concentrations, particularly if they persist for several levels, may represent discard behavior, even if no traces of refuse pits remain (Blanton et al. 1986). This could be used to interpret both debitage and fire cracked rock concentrations within Levels 2 and 3 at 31Dh234 as discard activity, although the presence of tree root features in each unit cannot be discounted.

In summary, occupation phases from Paleo-Indian (Dalton) to Protohistoric (Randolph) periods are represented at 31Dh234, although the major occupation appears to have been Late Woodland, based on lithic and ceramic evidence. A variety of lithic raw materials were available to site occupants, due to the site's proximity to Carolina Slate Belt outcrops. Procurement of stone appears to have concentrated on locally available materials; the only non-local raw materials procured were chert and perhaps jasper. While rhyolite was the material most frequently utilized, hafted bifaces from the site reflect a distinct shift between a rhyolite preference by Archaic populations to higher quartz use by Woodland populations. Except for unifaces and pebble tools, the frequency ranking of raw materials is consistent for both tools and debitage.

Formal tools, consisting of hafted bifaces, bifaces, unifaces, drills, and axes or celts, occur less frequently than do expedient flake tools. Plotting the distribution of hafted bifaces indicates slight horizontal separation of Archaic and Woodland occupations. Mapping of lithic debitage, however, fails to support any clear temporal differentiation in site use. Site reoccupation in the piedmont is well documented (Coe 1964; Claggett and Cable 1982; Goodyear et al. 1979). Factors contributing to this phenomenon may include favorable campsite topography, exploitation of the same natural resources over time, or scavenging and reuse of previously discarded lithic materials.

6.0 VESSEL ANALYSIS

6.1 Stone Vessels

The 33 steatite bowl sherds recovered from 31Dh234 consist of 23 body sherds, five rimsherds, and five basal sherds. One, and possibly two, vessels are represented. The largest concentration (64%) was in Excav. Unit 4, where 17 of 21 sherds were recovered from Level 2. The Plowzone in Unit 10 produced another 24%, with the remaining 12% originating in the Plowzone of Excav. Units 13 and 14 and Fea. 12 (Table 20).

TABLE 20

Distribution of Steatite Bowl Sherds, 31Dh234

Excav. Unit	Level	Quantity	Percent
4	PZ	3	9
4	2	17	52
4	3	1	3
10	PZ	8	24
13	PZ	1	3
14	PZ	2	6
Fea. 12		1	3
TOTAL		33	100

Cross-mending produced sections of a thin, well made steatite bowl with a thin, rounded rim and flat base; side walls rise at an angle of 25 degrees. Basal sherds exhibit an average thickness of 13.2 mm (range 11.5-19.5 mm), and the average maximum thickness of the 26 measurable rim and body sherds is 7.7 mm (range 5.0-13.0 mm).

Seven non-bowl fragments of steatite, probably resulting from vessel manufacture, were recovered from 31Dh234. This provides scant evidence of stone bowl manufacture on-site. Two of these unmodified fragments were recovered from Level 2 of Excav. Unit 2 and Fea. 12, with the remaining five specimens recovered from the Plowzone of Excav. Units 4, 5, and 10.

Steatite bowl usage is associated with the Late Archaic period throughout the southeastern United States, and is interpreted as an indication of increasing sedentism among aboriginal populations (Steponaitis 1986:373). Portions of three soapstone vessels were reported from a nearby site, 31Dh242. These bowls had an average thickness of 10.4 mm (range 4.0-17.0 mm); one vessel had an estimated diameter of 20.0 cm and a height of 20.0-25.0 cm (Hargrove et al. n.d.:9.20-9.24). The exterior surfaces of the three bowls from 31Dh242 exhibited tool marks left during manufacture, and one fragment had a drilled mending hole next to a lug handle (Hargrove et al. n.d.: Fig.

6.27). Sample size at 31Dh234 was too small to permit any calculation of vessel size or volume.

6.2 Overview of Ceramic Vessel Analysis

Clay pottery, because it breaks easily, enters the archaeological record readily and in great numbers, and is fairly resistant to destructive post-depositional processes. The dilemma of pottery studies seems to lie between the potential of the data base and the reality of its fragmentation. When a whole vessel breaks, not only is the form (shape) of the vessel lost, but also the information communicated in the vessel's design (Arnold 1985:5).

The study of prehistoric pottery from archaeological contexts produces various data that can be used to describe and explain past cultural lifeways and processes. As a beginning, pottery has been used by archaeologists to set up culture histories by classifying attributes and attribute clusters -- such as rim elaboration, surface treatment, and tempering agents -- into ceramic types, and seriating the observable types on an individual site or a regional basis.

While chronology may be the initial objective of ceramic typology (Thomas 1979:139), there are many other physical qualities of pottery, which, once identified, can elicit data useful for activity reconstruction. A particularly good example of this is Braun's (1980) derivation of vessel function from measurable attributes of rimsherds recovered from archaeological contexts. These attributes are believed, to be systemically related to the intended use of the vessel.

The relationship of form and vessel function was realized at least as early as 1903 by Holmes (1903:61); however, it is only recently that archaeologists have systematically examined and attempted to apply this relationship. Smith (1983:116) states:

> Artifact form is determined by multiple interacting factors very important among which are human design decisions based on anticipated use.

The determination of vessel function on the basis of fragmentary archaeological specimens poses different problems from those encountered ethnographically. While the ethnographer relies on a small sample of relatively complete pottery-making observations, archaeologists generally deal with large collections of pottery vessel fragments. The archaeological approach has therefore emphasized the devising of methods to infer function from formal analyses of potsherds.

The goal of many ceramic studies within the past decade has been to glean as much information as possible from the study of archaeologically recovered vessel fragments. Wobst (1977:9) believes that artifacts, their shape, form, and style contain messages that were communicated within the society in which they were made, used, broken, and discarded:

> Since artifacts contribute heavily to human survival in energy and matter

> exchanges, and since artifact production and use involve at least potential information exchange, it is not surprising that human populations should avail themselves of the option to transmit messages in the artifact mode, and that the artifact form should be used to carry a variety of messages.

Braun (1983:108) has gone so far as to say that pots are manufactured as "tools," designed to perform mechanically and thermally for effectiveness in specific roles in society. Pottery manufacture consists of a series of techniques that a craftsperson must execute in order to produce a suitable final product. These techniques include raw material selection, clay processing (which includes removing impurities, washing, aging, and adding temper), forming, decorating, and firing (Rye 1981; Braun 1983).

Steponaitis's (1983) work on the ability of shell-tempered vessels to withstand thermal shock, attempts to view the behavioral patterns behind pottery manufacture, in this case, the potter's control over the product. Thermal shock resistance allows a vessel to be heated and cooled repeatedly without damage to the vessel (Arnold 1985:23).

Other recent research into the functional nature of pottery vessels may help archaeologists link cultural processes with the observed variation in vessel form within a site assemblage. Hally (1983a:163) contends that ethnographic data strongly support the assumption that variations in vessel morphology are functionally related.

6.3 Analytical Basis

Analysis of 762 ceramic specimens from excavated contexts, and 35 ceramic specimens from surface contexts, was conducted within the framework of the site research design, specifically as it relates to consideration of Hypotheses #3 - #5. The primary objective of the ceramic study was to separate the collection into meaningful typological categories, based on previously published type descriptions for the North Carolina piedmont (Coe 1952, 1964; Coe and Lewis 1952; Gardner 1980).

The second objective was based on the analytical results obtained by Hally (1983a, 1983b, 1984, 1986), Shapiro (1983), and Braley et al. (1986), which sought evidence of use wear through macroscopic examination. Diagnostic wear evidence on sherd surfaces included pitting or charring of interior surfaces, sooty exterior surfaces, and any wear or abrasion patterns which might indicate vessel function.

The third and final objective was the identification of vessel form, since the form of a pottery vessel can be indicative of its use in a human society.

The above tasks were accomplished through macroscopic analysis of physical characteristics and use wear attributes on each specimen larger than one half inch square. Residual specimens below this sample size were counted (n=596). Descriptive criteria recorded for each specimen

included temper (aplastic inclusions), exterior surface treatment, interior surface treatment, decoration, size, use evidence, and vessel portion (e.g., rim, body, base).

Additional attributes were recorded for rimsherds, including rim form, rim decoration, lip form, and lip decoration. Larger rimsherds were subjected to further form analysis based on the preserved rim arc. This involved the calculation of a rim diameter estimate using an "arc board," or concentric circle chart; and drawing of the rim profile.

The arc board used in calculating rim diameter consisted of a concentric circle chart, ranging from 2 - 50 cm diameters in 2 cm increments. Each rimsherd with at least 6 centimeters of preserved rim length was matched against a charted diameter by holding the lip of the sherd flush against the chart surface for proper "fit." Rim arc estimations were used to assist in the reconstruction of whole vessel form, and can also be used to estimate vessel volume (Shapiro 1983).

Rim profiles were drawn in an attempt to reconstruct partial vessel form, which was then used to infer whole vessel shape and possibly address questions of vessel function. Rim profiles were constructed by using a sherd board fitted with a vertical wooden dowel in its center. Sherd measurements were taken on two different axes, following Shapiro (1983:181). Proper vertical orientation of the rimsherd was achieved by placing the sherd lip flush against the horizontal surface of the sherd board, and then rocking the sherd back and forth until little or no light passed between the vessel lip and the board.

Once proper orientation had been established, horizontal measurements were taken by calculating the distance from the outer surface of the sherd to the vertical dowel at intervals of 2 - 5 cm. Next, a beam of light from a slide projector was directed at each properly oriented sherd; the resulting image was projected onto paper, allowing an outline to be traced. Finally, sherd thickness was measured at several different points, in order to draw a properly oriented, scaled rim profile.

The rim profiles from 31Dh234 were compared with previously drawn rim profiles for the Badin, Yadkin, Uwharrie, and Dan River series (Coe and Lewis 1952; Gardner 1980). At least one rim profile was drawn for each of the ceramic types identified at 31Dh234, except for New Hope. Fig. 63g depicts a Badin straight-sided jar, while Fig. 63e depicts a Yadkin bowl. Three Uwharrie jars with flaring rims (Fig. 63a, 63b, 63d) exhibit slight formal variations. A Dan River jar (Fig. 63f) and a Dan River bowl (Fig. 63c) are also depicted.

Typological classification of the ceramic assemblage from 31Dh234 is difficult because of two major factors. More than 77% (n=589) of the total sherds from the site were recovered from plowzone contexts, and were extremely fragmentary and/or worn; 448 (59%) of the total non-residual sherds from 31Dh234 remain untyped. In addition, much of the Woodland ceramic sequence in the North Carolina piedmont has been defined, but a fair amount remains unpublished although type collections are available for study (Ward 1983:76).

In the North Carolina piedmont, temper is generally used as a

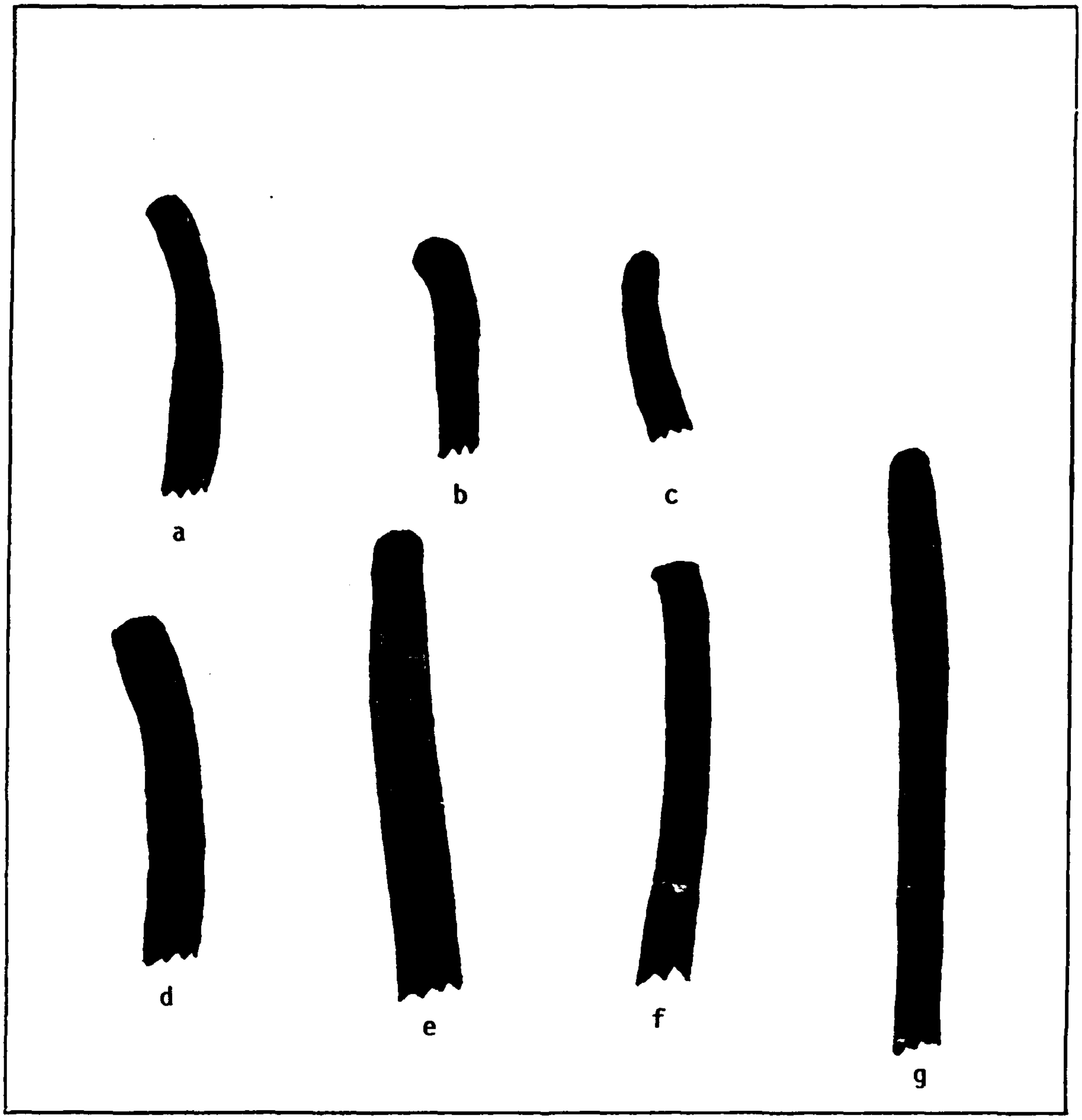


Figure 63. Ceramic vessel rim profiles from 31Dh234. a. Uwharrie jar (Cat. No. 169-201-5, 21). b. Uwharrie jar (Cat. No. 130-201-5). c. Dan River bowl (Cat. No. 135-201-5). d. Uwharrie jar (Cat. No. 156-201-1). e. Yadkin bowl (Cat. No. 96-201-1, 2, 3, 4, 6). f. Dan River jar (Cat. No. 110-201-1, 12). g. Badin jar (Cat. No. 145-201-1, 2, 3, 49-59).

significant indicator of ceramic type. Prehistoric potters in this region used several different tempering agents, including fine sand, coarse sand, crushed quartz, crushed feldspar, and combinations of two or more of the above. Although sand often occurs naturally in potting clay from this region, temper -- a non-plastic inclusion -- was also added to the clay -- a naturally occurring, earthy, fine grained material that becomes plastic when mixed with water -- to strengthen its bonding qualities when fired (Grim 1968; Rye 1981). Tempering insures uniform drying of clay after initial vessel construction, thereby contributing to more successful firing (Shepard 1956:53-54; Judge 1987:6).

The treatment of the outer and inner surfaces of clay vessels, along with the elaboration of vessel rims, are also considered to be reliable indicators of ceramic type or series. Because certain surface treatments, such as cordmarking, fabric impressing, and net impressing, can occur in more than one series, typological identification becomes difficult.

The most reasonable assignment of series and type can thus be made when more than one attribute is taken into consideration. The following section describes and discusses each ceramic type/series identified in the 31Dh234 assemblage.

6.4 Ceramic Type/Series Descriptions

Five ceramic series were identified in the ceramic assemblage. The most frequently recovered series is associated with Dan River phase occupation of the site (Table 21). The second most commonly occurring ceramic series is New Hope, followed by a Yadkin-like type, Uwharrie, and Badin-like type.

TABLE 21

Prehistoric Ceramic Assemblage by Series, 31Dh234

	Type Freq.	%age
Dan River	152	49%
New Hope	56	18%
Yadkin-like	45	15%
Uwharrie	43	14%
Badin-like	13	4%
TOTAL	309	100%

Badin Series

Sources: Coe 1952:306, 1964:27-29; Claggett and Cable 1982:101

Thirteen sherds from 31Dh234 were assigned to the Badin series, based on consultation with Dr. Joffre Coe. Defined as a result of excavations at the Doerschuk site on the lower Yadkin River (Montgomery County, North Carolina) the Badin series exhibits cordmarked exteriors with large, clear, overstamped designs and fabric impressions of the "wicker type." Plain and net impressed vessels have also been tentatively identified. Vessel interiors are carefully smoothed and exhibit a clayey feel. Smoothing of vessel lips produces an undulating form. Vessel forms are most commonly rounded bowls and shallow jars with slightly restricted necks. Chronologically, the Badin phase was initially thought to occur between A.D. 1 - 600 (Claggett and Cable 1982:Fig. 4.5); recent radiocarbon dating may push these dates further back in time (see below).

Sherds assigned to the Badin series at 31Dh234 are more properly considered "Badin-like" because they occur at a significant geographical distance from the type site, and display certain differences in surface treatment and size from the published type description (Joffre Coe, personal communication 1988). Badin ceramics from 31Dh234 are often characterized by wicker fabric impressions which are considerably larger than the stiff weaves of Yadkin fabric impressions. In addition, one rimsherd from a straight-sided jar (Cat. No. 145-201-1, 2, 3, 49, 59) produced a 30 cm rim diameter (Fig. 64a).

31Dh234 Surface Treatment	Freq.	%age
Fabric Impressed	6	46%
Cordmarked	3	23%
Plain	2	15%
Unknown	2	15%
TOTAL	13	99%

Yadkin Series

Sources: Coe 1952:307, 1964:30-32; Claggett and Cable 1982:101; Anderson et al. 1982:299-302; Woodall 1984:76; Blanton et al. 1986:70

Forty-five sherds recovered from 31Dh234 were assigned to the Yadkin series, based on consultation with Dr. Coe. The type description for Yadkin is also based on excavation of the Doerschuk site, where Yadkin materials occur in strata overlying the Badin phase. Yadkin ceramics are distinguished by the inclusion of crushed quartz temper, which frequently constitutes 30%-40% of the paste (Coe 1964:30). Vessel forms are most commonly hemispherical bowls and semi-conoidal jars. Chronologically, the Yadkin phase was initially thought to occur between A.D. 600 - 1200 (Claggett and Cable 1982:Fig. 4.5), but recent radiocarbon dates from 31Dh8 in the Jordan Reservoir (North Carolina), and from 38Su83 in the upper coastal plain of South Carolina (Blanton et al. 1986) suggest a much earlier date range for both Yadkin and Badin. Yadkin at 31Dh8

produced a date of 290 B.C. - A.D. 60. Corrected dates of 220 B.C., 400 B.C., and 630 B.C. from 38Su83 place Yadkin even earlier (Blanton et al. 1986).

The predominant surface treatments exhibited by Yadkin ceramics are cordmarking and fabric impressing. The fabric impressions on Yadkin are similar to those made by Badin potters, but reflect a much finer weave (Coe 1952:307). A minority of linear check stamped types was observed in the Doerschuk collections. Classic Yadkin cordmarked surfaces are often smoothed over, which partially obliterates the cord impressions. The rims of Yadkin sherds are straight and vertical; lips normally are round and smooth. Fabric impressed vessels often exhibit rims that have been flattened and bear fabric impressions on the interior.

Yadkin ceramics from 31Dh234 resemble those from the type site, but are variant and geographically distant enough to be more properly considered "Yadkin-like" (Joffre Coe, personal communication 1988). One partially reconstructed bowl from 31Dh234 (Cat. No. 96-201-1, 2, 3, 4, 6) yielded a rim diameter estimate of 32 cm (Fig. 64b).

31Dh234 Surface Treatment	Freq.	%age
Fabric Impressed	26	58%
Cordmarked	13	29%
Net Impressed	2	4%
Smoothed	1	2%
Unknown	3	7%
TOTAL	45	100%

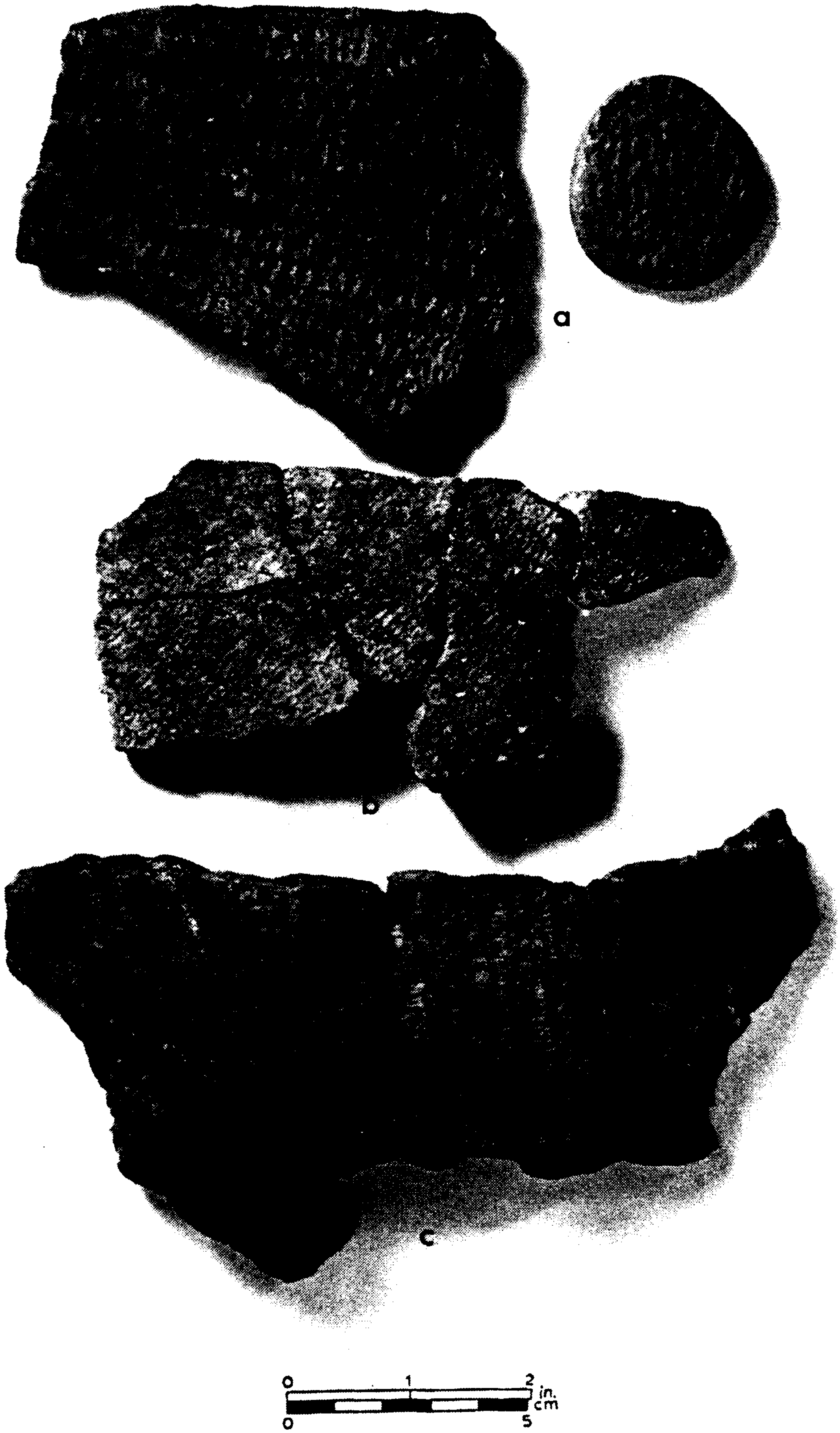
Uwharrie Series

Sources: Coe 1952:307-308; McCormick 1970; Holland 1970; Wilson 1976; Claggett and Cable 1982:102; Woodall 1984:76

Forty-three Uwharrie sherds were recovered from 31Dh234 (Fig. 64c, 65a, 65b) (Joffre Coe, personal communication 1988). This ceramic type is recognizeable by the presence of large, crushed quartz temper, sometimes spanning the entire vessel wall thickness. The highly friable surfaces of Uwharrie vessels are predominantly cordmarked, net impressed with loose weave netting, or scraped. Plain, simple stamped, and check stamped treatments also occur.

Incising of the short, vertical rims of Uwharrie vessels appears earliest in the piedmont sequence during the Uwharrie phase. Frequently the exterior rim area of cordmarked and net impressed vessels was scraped prior to the application of parallel incised lines. The interior surfaces of Uwharrie vessels were also scraped and thinned with a serrated tool. Chronologically, Uwharrie falls around A.D. 1200 (Coe 1952:307; Holland 1970:82). Vessel forms are most commonly hemispherical bowls and conoidal jars.

Figure 64. Prehistoric ceramic specimens from 31Dh234. a. Reconstructed Badin fabric impressed rimsherd and clay impression (Cat. No. 145-201-1, 2, 3, 49, 59); b. Reconstructed Yadkin fabric impressed rimsherd (Cat. No. 96-201-1, 2, 3, 4, 6); c. Mended Uwharrie overscraped fabric impressed body sherds (Cat. No. 168-201-2, 3 and 170-201-6, 13, 21).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b
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Figure 65. Prehistoric ceramic specimens from 31Dh234. a. Uwharrie cordmarked body sherd (Cat. No. 169-201-1); b. Uwharrie cordmarked rimsherd (Cat. No. 156-201-1); c. Mended Dan River cordmarked rimsherd (Cat. No. 169-201-5, 21); d. New Hope body sherd (interior) showing feldspar temper (Cat. No. 128-201-8); e. Sherd disk fragment (Cat. No. 146-201-59); f. Sherd abrader (Cat. No. 147-163-1); g. Unidentified sherd appendage (Cat. No. 117A-201-6); h. Sherd handle (Cat. No. 92-201-44); i. Sherd rosette (Cat. No. 132-201-18); j. Ceramic vessel base showing uncompacted coils (Cat. No. 145-201-34).


b
c
d
e
f
g
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0 1 2 in.
cm
0 5

31Dh234 Surface Treatment	Freq.	%age
Fabric Impresed	3	7%
Cordmarked	15	35%
Net Impressed	1	2%
Incised	1	2%
Simple Stamped	1	2%
Scraped	18	42%
Unknown	4	9%
TOTAL	43	99%

Dan River Series

Sources: Griffin 1945:325-326; Lewis 1951; Coe 1952:309-310; Coe and Lewis 1952; Holland 1970; Coleman 1976; Waselkvoff 1977; Gardner 1980:30-31; Claggett and Cable 1982:103; Woodall 1984:77

One hundred fifty-two Dan River sherds were recovered from 31Dh234 (Fig. 65c, 66, 67g). Dan River vessels are tempered with coarse river sand, with some crushed quartz added to the paste as well. The predominant surface treatment is net impressing, although plain surfaces also occur. Minority surface treatments include corncob impressing, cordmarking, scraping, and brushing. Complicated stamping is rare. Vessel interiors are carefully smoothed. Jar rims flare outward, while straight or slightly inverted rims occur on bowls. Vessel lips are flattened or rounded, and are decorated with notching or incising. McCollough et al. (1982) report a date range of A.D. 1625-1675 for the Dan River series, while Claggett et al. (1982: Fig 4.5) report a date range from A.D. 1625-1700, and Gardner (1980:55) reports a date range of A.D. 1300-1725 for Dan River ceramics.

A partially reconstructed Dan River jar rim yielded a 34 cm rim diameter estimate (Cat. No. 110-201-1, 12)(Fig. 66a).

31Dh234 Surface Treatment	Freq.	%age
Fabric Impressed	5	3%
Cordmarked	32	21%
Net Impressed	105	69%
Corncob Impressed	1	-
Unknown Stamped	1	-
Smoothed	1	-
Plain	4	3%
Unknown	3	2%
TOTAL	152	98%

New Hope Series

Sources: Smith 1965:107-118; McCormick 1970:79-81; Wilson 1976:31-41; Claggett and Cable 1982:104-106

Fifty-six New Hope sherds were recovered from 31Dh234, and are recognizeable by the inclusion of finely crushed feldspar in the paste (Fig. 65d). Feldspar is "any of a group of crystalline minerals that consist of aluminum silicates with either potassium, sodium, calcium, or barium and that are an essential constituent of nearly all crystalline rocks" (Webster 1972). Feldspar is the principal element in most igneous and metamorphic rocks, and also is abundant in many sediments (Ernst 1969:85-86; Pough 1960:235).

Crushed quartz and medium fine water-worn sand also occur as tempering agents in New Hope ceramics, which contain quantities of water worn sand as well. Thus, the paste of New Hope ceramics consists of 10%-30% temper, with the exception of New Hope Rough Plain, which contains 30%-60% temper.

There are six recognized surface treatments associated with the New Hope series: smooth plain, rough plain, cordmarked, fine fabric impressed, coarse fabric impressed, and net impressed. Interior surfaces are smoothed, scraped, and floated. Rims are predominantly straight and vertical, or slightly everted. Vessel lips are predominantly finger smoothed.

Smith (1965) and McCormick (1970) believe that the New Hope series temporally belongs between Badin and Uwharrie, since it represents an intermediate temper class between the sand tempered Badin series and the quartz tempered Uwharrie series. Wilson (1967:37), observing that the majority of New Hope materials are smoothed and undecorated, sees these traits as indicative of Late Woodland themes, a characteristic supported by the "sugary" texture of both the New Hope and Late Woodland Pee Dee series (Wilson 1976:37; Reid 1967).

31Dh234 Surface Treatment	Freq.	%age
Fabric Impressed	16	28%
Cordmarked	2	3%
Net Impressed	7	13%
Incised	1	2%
Scraped	1	2%
Smoothed	6	11%
Plain	4	7%
Unknown	19	34%
TOTAL	56	100%

6.5 Description of Site Ceramic Assemblage Characteristics

All of the ceramic vessels represented at 31Dh234 were constructed by the coil method (Fig. 65j). The predominant surface treatments observed in the ceramic assemblage are cordmarked (20%), net impressed

Figure 66. Dan River series ceramics from 31Dh234. a. Mended smoothed rimsherds (Cat. No. 110-201-1, 12); b. Cordmarked rimsherd (Cat. No. 130-201-5); c. Incised rimsherd (Cat. No. 128-201-3); d. Net impressed body sherd (Cat. No. 128-201-1); e. Mended net impressed body sherds (Cat. No. 115-201-1, 2); f. Net impressed body sherd (Cat. No. 135-201-5); g. Net impressed body sherd and clay impression (Cat. No. 130-201-1); h. Net impressed body sherd and clay impression (Cat. No. 108-201-2, 3); i. Net impressed body sherd (Cat. No. 146-201-15).

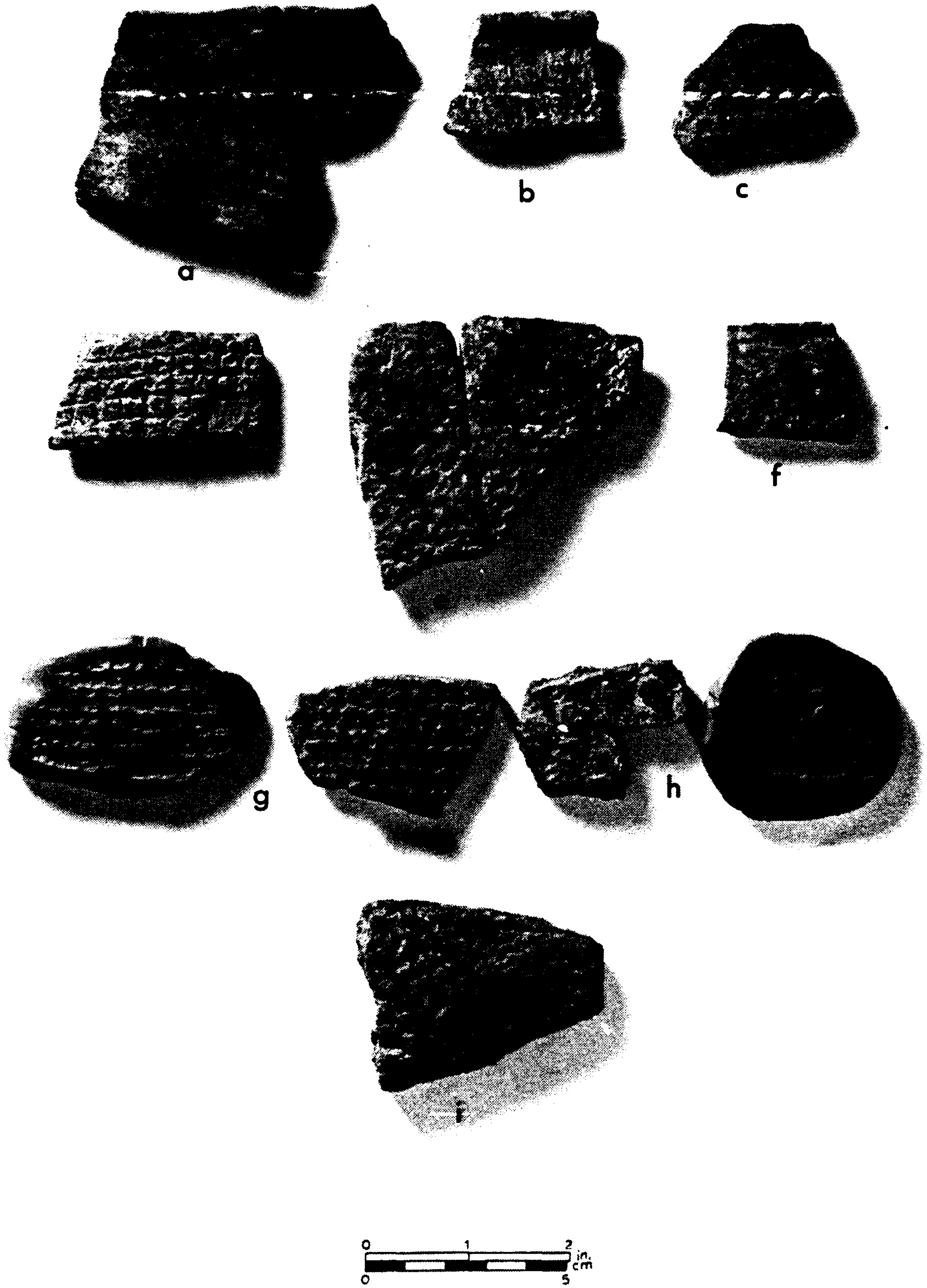
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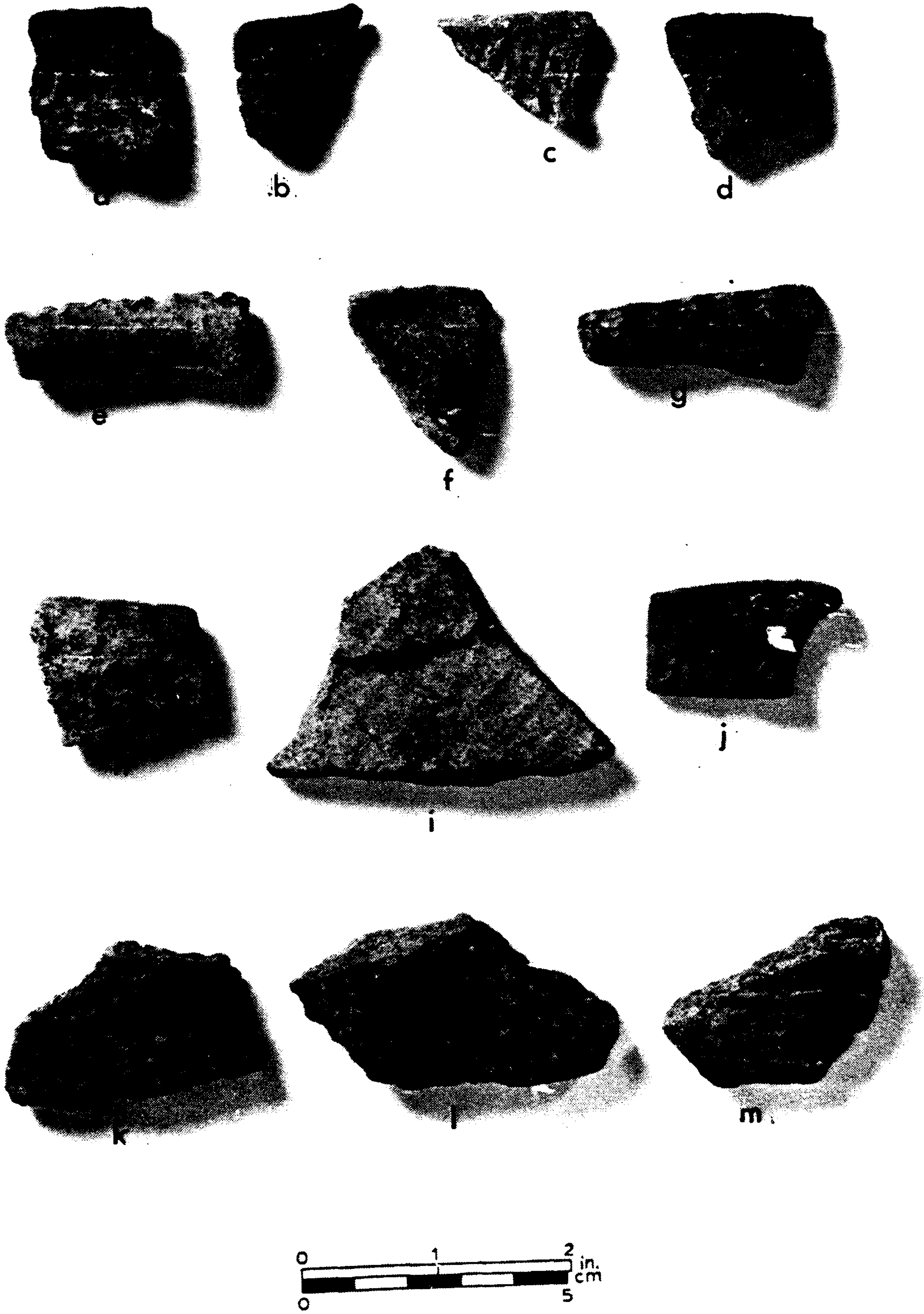
Figure 67. Prehistoric ceramic specimens from 31Dh234. a. Unidentified rimsherd (Cat. No. 156-201-23); b. Unidentified rimsherd (Cat. No. 156-201-26); c. Unidentified rimsherd (Cat. No. 145-201-5); d. New Hope net impressed, undeccrated rimsherd (Cat. No. 170-201-4); e. New Hope net impressed rimsherd interior (Cat. No. 171-201-21); f. Unidentified rimsherd (Cat. No. 110-201-19); g. Dan River net impressed rimsherd interior (Cat. No. 146-201-9); h. Unidentified rimsherd (Cat. No. 144-201-7); i. Unidentified rimsherd (Cat. No. 163-201-2, 3); j. Unidentified rimsherd (Cat. No. 145-201-4); k. Unidentified complicated stamped body sherd (Cat. No. 145-201-40); l. Unidentified complicated stamped body sherd (Cat. No. 131-201-1); m. Unidentified incised body sherd (Cat. No. 135-201-12).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(17%), and fabric impressed (16%). Minority surface treatments include smoothed, plain, and scraped, each of which constitutes 5% of the total. Complicated stamped (2%) (Fig. 67k, 67l) scraped/overstamped fabric impressed, simple stamped, and corncob impressed constitute less than 1% of the assemblage (Table 22).

TABLE 22

Prehistoric Ceramic Surface Treatments, 31Dh234

Eroded	214	28%
Cordmarked	153	20%
Net Impressed	129	17%
Fabric Impressed	120	16%
Smoothed	37	5%
Plain	37	5%
Scraped	34	5%
Complicated Stamped	11	2%
Incised	9	1%
Unknown Stamped	6	1%
Scraped/Overstamped Fab. Imp.	3	-
Simple Stamped	3	-
Corncob Impressed	1	-
TOTAL	757	100%

A seriation of container fragments, including steatite and clay ceramics, was generated from the 31Dh234 data in order to provide additional information concerning the apparent stratification of cultural deposits at the site (Fig. 68). As expected, the two latest ceramic series -- Uwharrie and Dan River -- were found to decrease in frequency with depth below surface, while Badin and Yadkin materials, as well as steatite, increased with depth. Only Yadkin (Middle Woodland) and steatite (Late Archaic) materials were recovered from Level 3. New Hope ceramics occur in greatest frequency in Level 2, and decrease in the Plowzone.

This seriation supports ARC's assessment that vertical stratification remains at least somewhat intact at 31Dh234, although it is not easily discernible in soil profiles. The ceramic seriation also augments the seriation of hafted bifaces (see Fig. 32), which also indicates cultural stratification, with Early and Middle Archaic hafted bifaces increasing with depth below surface, and small triangular bifaces decreasing with depth.

Badin ceramics are the least frequently-occurring ceramic series at 31Dh234. No Badin materials were recovered from Block #1, while Block #2 produced Badin sherds only in Excav. Units 1, 2, and 17. Other areas of the site which produced this series include Excav. Units 1 and 4 (Fig. 69).

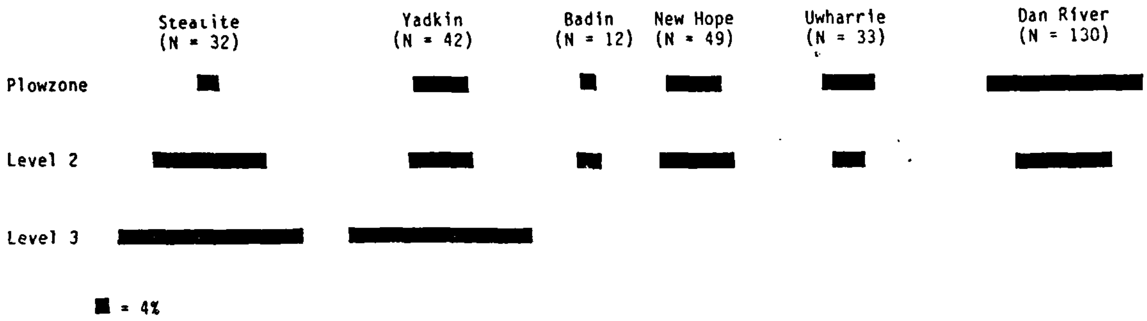
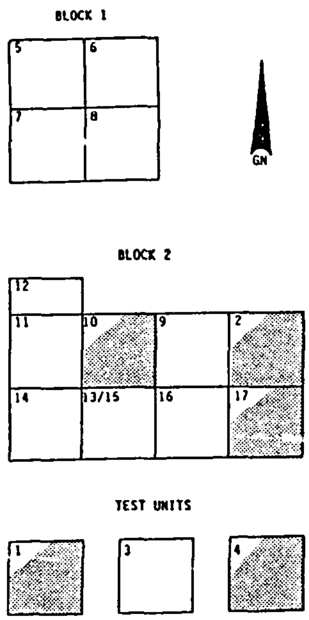


Figure 68. Prehistoric ceramic seriation, 31Dh234.

Yadkin ceramics at 31Dh234 occur most frequently in Block #2, particularly in Excav. Units 9, 10, and 11; they are absent only from Excav. Units 17 (Block #2), 5 and 6 (Block #1)(Fig. 70). Uwharrie ceramics, unlike the Dan River series, do not occur in every excavation unit at 31Dh234; they are absent from Excav. Units 13/15 and 16 (Block #2) and from Excav. Unit 3. In Block #1, Uwharrie materials occur only in Excav. Unit 5. The greatest number occur in Excav. Units 9 and 10 (Fig. 71).

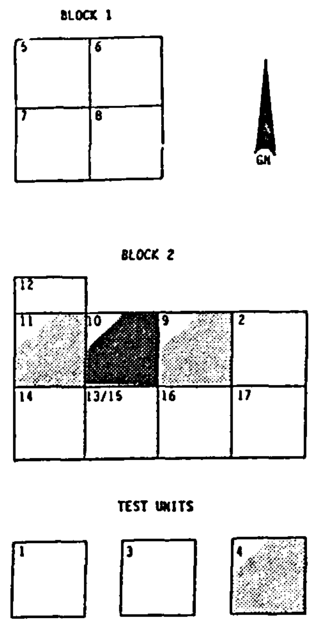
Dan River ceramics were recovered from every excavated context at 31Dh234. They occurred in greater frequencies at the south end of the site, particularly in Excav. Unit 1 and in Block #2 (Excav. Units 9, 10, and 14)(Fig. 72). Unlike any other ceramic types recovered from 31Dh234, New Hope ceramics were recovered most frequently from Block #1 (Excav. Unit 5) (Fig. 73).

Identification of vessel function from the ceramic assemblage at 31Dh234 is difficult. Approximately equal numbers of jars and bowls are represented (Table 23). Although it can be presumed that at least some pottery vessels were used in the preparation of meals, not a single sherd in the collection exhibited evidence of exterior surface sooting, interior charring, or cooking wear, which Hally (1983a, 1983b, 1984, 1986) and others have used to pinpoint cooking pots in Mississippian contexts. Following Blanton et al. (1986:98), this factor suggests either that the 31Dh234 collection represents pots that were not used for cooking, or that cooking soot deposits have been leached from the fired clay by post-depositional processes associated with the strongly acidic nature of White Store soils (Kirby 1967:26).



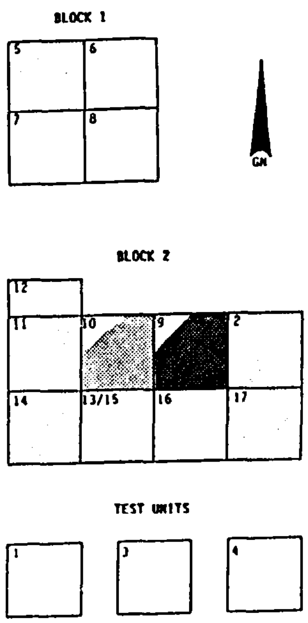
Badin Ceramics
Key: = 1

Figure 69. Plowzone frequency distribution of Badin ceramics.



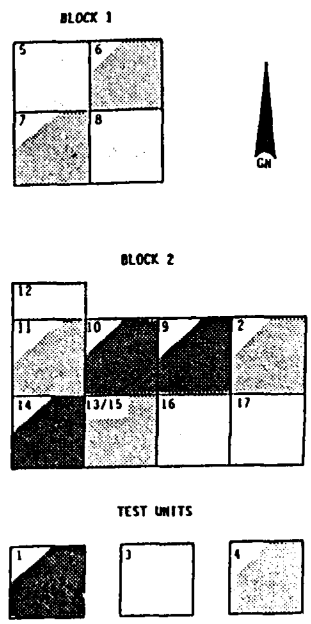
Yadkin Ceramics
Key: = 1-3; = 4-6; = 7-9

Figure 70. Plowzone frequency distribution of Yadkin ceramics.



Uwharrie Ceramics
Key: = 1-4; = 5-8; = 9-12

Figure 71. Plowzone frequency distribution of Uwharrie ceramics.



Dan River Ceramics
Key: = 1-5; = 6-10; - 11-15

Figure 72. Plowzone frequency distribution of Dan River ceramics.

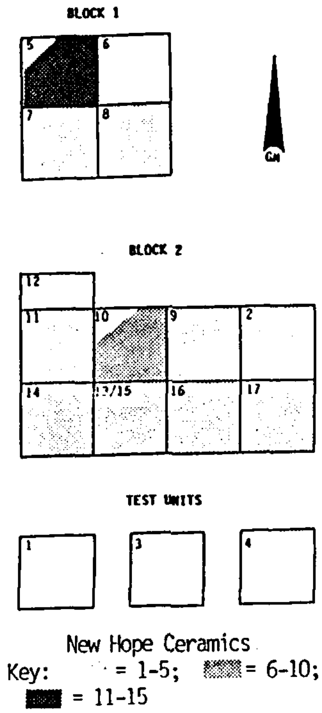


Figure 73. Plowzone frequency distribution of New Hope ceramics.

TABLE 23

Reconstructed Vessel Forms, 31Dh234

Bowls	23 (45%)
Jars	28 (55%)
Total	51 (100%)

Another interpretation of the 31Dh234 ceramic collection is that the vessels could have been used as storage containers (Blanton et al. 1986: 99). If 31Dh234 represents a seasonally occupied, ephemeral base camp utilized for subsistence procurement activities, some sort of containers might be expected for storage, protection, and transportation of items accumulated from the base camp. However, baskets or other less fragile and more portable containers would seem far better suited for such mobile tasks. Although the reconstructible ceramic sample is quite small, it can be noted that jars tend to flare more during the Late Woodland period (see Fig. 63). If this trend is valid across a larger sample, it may reflect changing storage needs after the Early Woodland period in the Carolina piedmont.

The low frequency of Woodland pottery at 31Dh234 compared to the high frequency of Woodland lithics may be indicative of a lack of occupational permanence during this period. This inference is further supported by the observed low frequency of rim and basal sherds in the ceramic assemblage (Table 24), which indicates a low frequency of single-vessel breakage, and therefore, a low frequency of vessel use and discard at the site. Since rims constitute a very small portion of a whole pot, vessel breakage should produce proportionally fewer rims than body sherds; this is borne out by the distribution of rimsherds and body sherds at 31Dh234 (Table 24).

TABLE 24

Ceramic Vessel Parts, 31Dh234

Body Sherds	676 (89%)
Rimsherds	75 (10%)
Basal Sherds	6 (1%)
TOTAL	757 (100%)

Five other ceramic specimens were recovered from 31Dh234, including one discoidal fragment (Fig. 65e), a sherd abrader (Fig. 65f), an unidentified vessel appendage (Fig. 65g), a handle (Fig. 65h), and a rosette (Fig. 65i).

7.0 OTHER SITE ASSEMBLAGES

7.1 Faunal Materials

Bone fragments were recovered from nine excavation units at 31Dh234. The heaviest concentration of faunal bone occurs in Block #2, Excav. Units 10, 11, and 13. All but two specimens (Cat. No. 109-301, 148-301) are from the Plowzone, as shown in Table 25. Approximately one-half of the bone fragments are calcined, and the rest are charred.

Although the bone fragments from 31Dh234 are too small and fragmentary to allow species identification or assessment of food value, these materials appear to represent the remains of small to medium-size animals. A few specimens (Cat. No. 145-301, 146-301) appear to be grooved, but it is not clear whether this is a result of cultural or taphonomic processes (Efremov 1940; Wood and Reitz 1986). Since most of the materials were recovered from plowzone contexts in an active game hunting area, they are likely to reflect relatively recent kills.

TABLE 25

Distribution of Faunal Bone Fragments, 31Dh234

Excav. Unit	Level	Freq.	Weight
2	2	1	.10 g
8	PZ	1	.10 g
9	PZ	1	.20 g
9	2	1	.05 g
10	PZ	22	12.00 g
11	PZ	15	8.50 g
12	PZ	1	1.80 g
13	PZ	23	11.60 g
14	PZ	3	1.20 g

One fragment of turtle shell (Cat. No. 145-301) was recovered from the Plowzone of Excav. Unit 10. Given the proximity of Flat River to the site, no specific cultural association or age can be inferred. A portion of whelk shell (marine Busycon) was recovered from the Plowzone of Excav. Unit 11. This material is not of local origin, and may be part of a cylindrical bead made from a large whelk columella. Shell of an unspecified type was reported from the Falls Lake area (Hargrove et al. n.d.:6.32), but no further details were provided concerning its nature or archaeological context. Cylindrical columella beads have been reported from a number of Woodland sites in the North Carolina piedmont, including the predominantly Late Woodland Donnaha site (31Yd9)(Woodall 1984:61-62), Wall site (31Or11), and early Upper Saratown site (31Sk1a)(Hammett 1987). Similar beads have also been reported Town Creek (31Mg3) and the Historic Fredericks site (31Or231)(Hammett 1987).

7.2 Botanical Materials

Fragments of two charred hickory nutshells were recovered from 31Dh234, one from the Plowzone of Excav. Unit 10 and the other from Level 2 of Excav. Unit 11. No clear cultural association can be inferred.

7.3 Historic Materials

A few historic items were encountered during data recovery. Most appear to be of nineteenth or early twentieth century origin, given the settlement history of the Falls Lake area. These materials include a shotgun shell casing, a .22 shell casing, two brick fragments, two cut nails, one wire nail, a quantity of corrugated tin roofing, and fragments of clear bottle glass.

A single eighteenth century, spall-type gunflint (Cat. No. 171-154) of honey-colored flint (probable French origin) was recovered from the Plowzone of Excav. Unit 17. Numerous references in Lawson's journals (Lefler 1967) indicate that the Indians of the North Carolina piedmont had access to firearms by the early 1700s; thus, an eighteenth-century French gunflint could be contemporary with the historic period Randolph hafted bifaces which were also recovered from 31Dh234 (Coe 1964:49-50).

8.0 EVALUATION OF RESEARCH HYPOTHESES

8.1 Overview

Interpretation of the nature of occupation at 31Dh234 and its stratigraphic sequence must be approached with a considerable amount of caution. First, the integrity of the site is somewhat problematic, as illustrated by conflicting assessments by two previous researchers. The high degree of post-depositional disturbance noted throughout the cultural deposit appears to be due to taphonomic, as well as geological and cultural processes, but is highly localized in effect. In addition, the high acidity and porosity of the soil appears to have eliminated the preservation of organic remains, along with feature outlines. Such destructive factors reduce the utility of attempting to reconstruct subsistence patterns, such as resource procurement, and food processing/preparation and discard activities, which characterized site habitation. Thus, analysis must be limited to the lithic and ceramic assemblages and "floor" contexts which can be associated with a small number of relatively undisturbed on-site contexts.

The morphological nature of these assemblages suggests that both Archaic and Woodland populations relied on expedient rather than formal tools to procure and process local resources. Previous research into the strategies of Late prehistoric hunters in the North Carolina piedmont have provided evidence of a seasonal round. Winter was a time of deer hunting and food storage, the spring subsistence revolved around the capture of small game, wild and domestic plant foods were harvested throughout summer, and in fall and early winter nut gathering and turkey hunting prevailed (Waselkov 1977:238). Ethnohistoric sources suggest a considerable continuum between prehistoric subsistence practices and those of the historic period in the Southeast (Swanton 1946:251-257; Lefler 1967:182-184).

8.2 Discussion

Hypothesis #1:

The intensity of aboriginal occupation at 31Dh234 decreased from the Archaic to Woodland periods. This may have been in response to shifting strategies of resource procurement within the transitional and upland environmental zones.

The intensity of aboriginal occupation at 31Dh234 did not decrease through time, but appears to have remained fairly consistent, although Woodland reoccupation of the site appears to have occupied slightly more area than that of the Archaic occupation (Figs. 49, 69-73). The heaviest occupation occurred during the Late Woodland period; 42% (n=65) of hafted bifaces are Small Woodland triangles, while 40% (n=62) of the hafted bifaces are Archaic, and the remaining 18% consists of one South Appalachian Mississippian, five Historic, and 22 Early Woodland and unidentified items. Dan River ceramics were found to be more widely distributed across the site surface than were Archaic bifaces.

Hypothesis #2:

The technological form of tool kits at 31Dh234 reflects the composition and distribution of local food resources rather than temporal differences in site occupation.

This assumption is supported by the 31Dh234 assemblage. The technological form of certain tools recovered from 31Dh234 reflects a preference by the site occupants for expedient tools (retouched/utilized flakes - n=319; flake gravers, perforators, spokeshaves, burins - n=70), although formal tools (n=79) are also present. Also present are high frequencies of unidentified bifaces (n=162) and temporally diagnostic hafted bifaces (n=155). This suggests that some tools were manufactured quickly as they were needed to perform specific tasks, and then abandoned or discarded. Waste flakes previously deposited as refuse could easily have served this purpose.

The lithic assemblage from 31Dh234 displays some interesting similarities to those from other Late Woodland sites in the North Carolina piedmont, despite the fact that these sites are major villages and lack a strong Archaic component (Table 26). The major components of the Donnaha site (31Yd3) date between A.D. 1000-1500 (Woodall 1984:105), and has both Uwharrie and Dan River components. The Forbush Creek site (31Yd1) is thought to have been occupied during the early to middle part of the Late Woodland period, ca. A.D. 1200-1400 (McManus 1985:7; Coe 1972:13). The Wall site (31Or11) is Protohistoric/Historic with an average corrected occupation date of A.D. 1454 +/- 80 (Dickens et al. 1987:6). Early Upper Saratown (31Sk1) is coeval with the upper levels at Donnaha (A.D. 1000-1500)(Woodall 1984:2).

Two possible sources of bias are recognized with regard to the figure in Table 26. First, no correction factor was applied to determine tool category densities per unit area excavated. Second, 1/4-inch mesh was used to screen soil at 31Dh234 and 31Yd9, while 1/2-inch mesh was used at the other three sites. This factor may account for the higher percentages of debitage recovered from the first two sites.

There is a lower proportion of formal Woodland tools (Small Woodland Triangles) at 31Dh234. This is due to the nearly equal numbers of Archaic and Woodland hafted bifaces at this site. Nevertheless, the distribution of expedient tools (Utilized/Retouched Flakes) is quite similar, as is the proportion of debitage in the assemblages. It is possible, therefore, that although certain procurement and/or processing activities and associated technology characterized special activity campsites, comparable activities and technology were present in the more permanent habitation settings as well, as part of a larger-scale spectrum of resource use and basic tool kit production/maintenance.

TABLE 26

Comparison of Selected Lithic Categories
From North Carolina Piedmont Woodland Sites

	31Dh234	31Yd9	31Yd1	31Or11	31Sk1
Archaic Hafted Bif.	62	8	0	3	2
	40%	3%	-	2%	4%
Small Woodl. Triangles	65	176	184	113	43
	42%	78%	88%	96%	96%
Other Hafted Bifaces	28	41	25	2	0
	18%	18%	12%	2%	-
TOTAL HAFTED BIFACES	155	225	209	118	45
	100%	99%	100%	100%	100%
Util./Ret. Flakes	319	33*	311	170	11
	3%	--	7%	5%	2%
Debitage	10,221	9,752	3,793	3,008	596
	96%	97%	88%	91%	91%
TOTAL	10,695	10,010	4,313	3,296	652

* Retouched flakes only

Hypothesis #3:

Local resource exploitation by the occupants of 31Dh234 was characterized by a diffuse economy.

The diversity and quantity of plant, animal, and lithic resources available in upland and stream environments within several miles of 31Dh234 (see Sec. 2.2), together with the diverse stone tool assemblage, suggest that the entire period of site occupation was based on subsistence practices associated with a diffuse prehistoric economy. However,

this site is not an example of those rare instances where organic preservation is good (e.g., dry caves, submerged deposits, highly alkaline soils), and only a fraction of the food remains can be directly observed in archaeological contexts. Inference, therefore, must be based on ethnographic analogy; the less destructible subsistence remains, such as stone and bone tools; and contextual association of material remains associated with food processing and production.

The diverse tool assemblage recovered from 31Dh234 is indicative of a diffuse subsistence strategy based on hunting (hafted bifaces, atlatl handle), butchering (choppers), hide processing (scrapers, end scrapers, perforators, drills), and plant processing (manos, metates). Other activities conducted on-site appear to include bone working (gravers), woodworking (axes, celts, wedges), flint knapping (hammerstones, abraders), and food preparation (steatite bowl and ceramics). The mano and metates recovered from the site may reflect the preparation of vegetal foods and materials, such as nuts, grains, seeds, berries, and natural pigments. The large amount of fire cracked rock from the site also provides evidence for the boiling of plant and animal foods.

The 69 preforms recovered from 31Dh234 are possibly reflective of quarrying activities within the Carolina Slate Belt. The wide variety of cryptocrystalline stone types, vein quartz, and quartz cobbles in the gravel deposits of streams and terraces would make the area attractive to those in search of lithic raw materials (Parker 1979:29, 44-46; Wilson and Carpenter 1975:9-13; Hargrove et al. n.d.:2.2-2.3).

Based on previous research concerning mobile hunter-gatherers, subsistence practices in environmentally rich areas can exhibit selective exploitation of only a fraction of the available food supply (Lee 1979:159, 226). Dietary preference, level of technology, and socio-cultural practices can serve to limit the spectrum of culturally "available" resources. For instance, the !Kung San, a hunting and gathering group in the Kalahari Desert of Africa, eat only 80 out of 262 species of available animals. Similarly, out of 105 edible plant species, 14 account for three-quarters of their vegetable diet, with the mongongo representing nearly one-half of this total.

While 31Dh234 yielded only slight direct evidence supporting Hypothesis #3, indirect evidence can be used to characterize local resource exploitation as a component of a diffuse economy. Evidence for cultural selectivity in the spectrum of food resources exploited is too speculative to constitute further discussion.

Ethnohistoric accounts (e.g., Lefler 1967) indicate that locally available food resources were diverse and plentiful during the protohistoric and early historic periods. Allowing for some micro-climatic shifts in the piedmont during the 6000 years prior to that time (see Sec. 2.2), it is assumed that similar conditions existed during the Middle Archaic period as well.

Hypothesis #4:

Sites occurring within the transitional and upland zones of piedmont drainage basins reflect short-term occupation camps oriented towards procurement and/or processing of locally available foodstuffs.

The evidence obtained from 31Dh234 indicates that site use by prehistoric human groups occurred repeatedly from the Early Archaic through the Protohistoric periods, and was characterized by procurement activities typical of a hunting and gathering economy. There is little to suggest shifting strategies of resource procurement during this range.

Non-local stone makes up a very small percentage of the lithic remains, suggesting that procurement activities were highly localized within the Falls Lake study area. Characteristics indicative of sedentary or semi-sedentary settlement (storage pits, postmolds, house floors, burials, buried hearths, caches; high proportions of ceramics and/or other site furniture), are absent (cf. House and Wogaman 1978). The small number of ceramics and steatite bowl fragments (7% of total artifact collection), together with large number of hafted bifaces (n=155) and expediently produced flake tools (n=319), are more consistent with expectations for short-term, perhaps seasonal, resource procurement or processing camps (House and Wogaman 1978; Binford 1979).

House and Ballenger (1976:87) have suggested that geographic distance to a permanent water source is more important to a maintenance site than to an extractive site in the piedmont. Despite the original location of 31Dh234 directly adjacent to a permanent spring, the high frequency of expediently manufactured/discarded tools, along with the high frequency of locally available stone raw material, suggests that the primary activity emphasis at 31Dh234 was extraction rather than maintenance (House and Ballenger 1976:87).

As Smith (1975) and House and Ballenger (1976) have suggested, the availability of acorn and hickory nuts in upland oak-hickory forests begins in August and corresponds with increased availability of white-tailed deer and wild turkey. The white-tailed deer was the most important game animal in the Southeast, providing 50% - 90% of the animal protein in the prehistoric diet (Hudson 1976:274-275). At the Eva site on the Tennessee River, deer made up 90% of all recovered mammal bone (Lewis and Lewis 1961). In her analysis of faunal remains from three Woodland sites in North Carolina, Runquist (1979) found that deer represented 80% - 95% of meat yields, based on recovered faunal items.

Other evidence from the piedmont indicates that raccoon, opossum, turtles, and fish also were exploited along stream bottoms during the Archaic and Woodland periods (House and Ballenger 1976:86). The location of 31Dh234 in a transitional zone, or ecotone, between river bottomlands and upland zones is consistent with strategic-based campsites oriented toward maximum use of available food resources. Although scanty, the evidence from 31Dh234 supports other piedmont research which suggests that hunting was still an important component of aboriginal subsistence strategies even after the adoption of agriculture during the Woodland period.

Hypothesis #5:

Shallow multicomponent sites which occur on upland landforms contain "compressed" or spurious vertical stratigraphy, with horizontal stratigraphy a more reliable indicator of componency and intra-site occupational distribution.

Addressing this question for 31Dh234 remains difficult after analyzing the data recovery findings. Post-depositional disturbance to this site has skewed both vertical stratigraphy -- illustrated by temporal mixing within a single cultural feature (Fea. 12) -- and discrete horizontal patterning created by successive use of the site by both Archaic and Woodland populations. Vertical compression of cultural levels does occur at the site as most of the cultural deposits are within the plowzone, although consistency was noted between levels in the frequency and arrangement of fire cracked rock and tool/debitage ratios. In addition, hafted biface and ceramic seriations demonstrate that vertical stratigraphy does occur at 31Dh234, with Woodland artifact distributions showing clear trends toward dominance in upper zones and Archaic materials concentrating in Levels 2 and 3. In addition, the vertical distribution of ceramics suggests little differentiation across the site; distribution maps depict both Archaic and Woodland hafted bifaces and other tool categories clustering in Excav. Units 9, 10, and 11.

Site disturbance by burrowing animals could not be assessed, since no soil stains or other activity clearly indicative of such disturbance was observed. Other soil processes, including organic leaching, tree root action, timber harvesting, stump clearing, cultivation, and moderate (recent) erosion have deflated and mixed localized areas of the relatively shallow zone overlying the subsoil. The exact history and nature of cultivation at 31Dh234 is unknown; the small size of aboriginal sherds in Plowzone/Surface contexts may be indicative of extensive plowing at one time, although plowing does not seem to have exceeded 22 cm below surface.

Several thousand years of reuse of the site for apparently similar extractive activities also hinders the chronological distinction of artifact assemblages, in the absence of diagnostics. Repeated reuse of a relatively shallow site by human groups certainly has its own set of cultural disturbances which affect the integrity of previous cultural deposits.

Surface data from 31Dh234 reflected a predominantly Woodland component located north of the farm road, while a major Archaic occupation was indicated on the south. This observation was supported by excavation in the presumed Woodland camp area (Block #1), where three of the four units contained diagnostic Woodland hafted bifaces and only one contained diagnostically Archaic hafted bifaces; and south of the farm road (Block #2), where the major Archaic component was concentrated.

8.3 Summary

In conclusion, data recovery at 31Dh234 revealed that both Archaic and Woodland period site occupants, who sporadically revisited the site after the Paleo-Indian period, used local raw materials for stone tools, relied predominantly on expediently made flake tools, and discarded or lost tools associated with a number of food and other resource processing activities. Lithic remains comprise the vast majority of artifacts recovered from the site (n=11,081), while ceramics make up only a small proportion (7%, n=797). Small amounts of animal bone, marine shell, and hickory nuts were recovered, as well as a small number of eighteenth century and late historic artifacts.

The prehistoric lithic assemblage is indicative of hunting and gathering activities, which appear to have changed very little through time and were probably associated with seasonal return to favored extraction campsites. Artifact morphology and raw material use spanning the Archaic through Late Woodland periods may be indicative of the long-standing efficiency of subsistence strategies associated with selective exploitation of seasonally and/or locally available resources. The wide variety of lithic, plant, and animal resources available locally would have made the site a suitable work station for logistically-based, mobile hunter-gatherers, as well as agriculturalists whose subsistence strategy included a diffuse economy.

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APPENDIX A

SPECIMEN CATALOG

Site #	Acc.	#	Description	Provenience
31Dh234				
	154	1	Flow banded rhyolite - unifacial side scraper	Surface/CU-1
	154	1	Rhyolite - denticulate uniface	
	173	1	Porphyritic rhyolite - chunk	
	201	2	Ceramic sherds	
	173	2	Quartz - cobbles	Surface/CU-2
	173	2	Quartz - chunks	
	173	1	UID lithic material - chunk	
	173	2	Rhyolite - secondary flakes	
	179	1	Steatite - bowl sherd	
	152	1	Jasper - biface fragment	Surface/CU-3
	152	1	Porphyritic rhyolite - biface fragment	
	173	1	Porphyritic rhyolite - secondary flake	
	173	1	Quartz - secondary flake	
	201	1	Ceramic sherd	
	049	1	Shotgun shell base	Surface/CU-4
	155	1	Chert - retouched flake	
	171	1	Basalt - cutting tool on flake	
	173	3	Rose quartz - chunks	
	173	3	Rhyolite - secondary flakes	
	173	1	Unidentified lithic material - secondary flake	
	202	1	Residual sherd	Surface/CU-5
	173	1	Crystal quartz - core	Surface/CU-6
	173	2	Rose quartz - chunks	
	173	1	Quartz - split cobble	
	173	1	Chert - secondary flake	
	173	2	Porphyritic rhyolite - secondary flake	
	173	4	Rhyolite - secondary flake	
	173	1	Unidentified lithic material - secondary flake	
	173	4	Rhyolite - secondary flakes	Surface/CU-7
	173	2	Rhyolite - secondary flakes	Surface/CU-8
	173	1	Chert - secondary flake	
	159	1	Quartz - hammerstone	Surface/CU-9
	173	1	Quartz - chunk	
	173	1	Quartz - secondary flake	
	173	1	Crystal quartz - secondary flake	
	173	1	Unidentified lithic material - secondary flake	
	152	1	Rhyolite - biface fragment	Surface/CU-10

Acc.	#	Description	Provenience
201	4	Ceramic sherds	Surface/CU-10
202	3	Residual sherds	
155	1	Rhyolite - utilized flake	Surface/CU-11
165	1	Rhyolite - chipped celt	
173	1	Quartz - chunk	
173	1	Quartz - secondary flake	
173	1	Chert - secondary flake	
173	1	Rhyolite - primary flake	
173	5	Rhyolite - secondary flakes	
173	7	Rhyolite - secondary flakes	Surface/CU-12
173	1	Hematite (?) - chunk	
173	1	Quartz - secondary flake	Surface/CU-13
173	1	Quartz - cobble fragment	
201	3	Ceramic sherds	
173	1	Quartz - chunk	Surface/CU-14
173	1	Porphyritic rhyolite - chunk	
155	1	Porphyritic rhyolite - utilized flake	Surface/CU-15
173	1	Porphyritic rhyolite - primary flake	
173	1	Porphyritic rhyolite - secondary flake	
202	1	Residual sherd	
173	6	Porphyritic rhyolite - secondary flake	Surface/CU-16
173	3	Rhyolite - secondary flakes	
173	1	Flow banded rhyolite - secondary flake	
173	4	Crystal quartz - secondary flakes	
173	1	Quartz - chunk	
173	1	Quartz - secondary flake	
173	1	Slate - secondary flake	
201	1	Ceramic sherd	
173	1	Quartz - chunk	Surface/CU-17
173	1	Rhyolite - secondary flake	
173	1	Flow banded rhyolite - secondary flake	
173	1	Porphyritic rhyolite - secondary flake	Surface/CU-18
201	1	Ceramic sherd	
159	1	Quartz - hammerstone	Surface/CU-19
173	1	Quartz - chunk	
173	2	Quartz - secondary flakes	
173	1	Crystal quartz - secondary flake	
173	1	Slate - secondary flake	
173	4	Porphyritic rhyolite - primary flakes	
173	4	Porphyritic rhyolite - secondary flakes	
173	1	Flow banded rhyolite - secondary flake	
173	1	Quartz - chunk	Surface/CU-20
173	1	Porphyritic rhyolite - secondary flake	

Acc.	#	Description	Provenience
173	3	Rhyolite - secondary flakes	Surface/CU-20
202	1	Residual sherd	
173	1	Quartz - secondary flake	Surface/CU-21
155	3	Porphyritic rhyolite - utilized flake	Surface/CU-22
155	1	Rhyolite - retouched flake	
159	1	Granitic - hammerstone	
173	1	Quartz - core	
173	1	Quartz - chunk	
173	1	Quartz - primary flake	
173	2	Quartz - secondary flakes	
173	1	Quartz - other flake	
173	1	Rhyolite - chunk	
173	1	Crystal quartz - chunk	
173	1	Crystal quartz - secondary flake	
201	2	Ceramic sherds	
155	1	Rhyolite - retouched flake	Surface/CU-23
173	1	Porphyritic rhyolite - secondary flake	Surface/CU-24
173	2	Porphyritic rhyolite - secondary flakes	Surface/CU-25
158	1	Rhyolite - graver	Surface/CU-26
159	1	Quartz - hammerstone	
173	1	Quartz - secondary flake	
173	1	Quartz - chunk	
173	1	Crystal quartz - secondary flake	
173	1	Porphyritic rhyolite - primary flake	
173	4	Rhyolite - secondary flakes	
201	3	Ceramic sherds	
202	1	Residual sherd	
204	1	Hematite - unmodified chunk	
201	1	Ceramic sherd	Surface/CU-27
202	1	Residual sherd	
169	1	Metavolcanic - fire-cracked rock	Surface/CU-28
173	1	Rose quartz - primary flake	
201	1	Ceramic sherd	
172	1	Quartz - UID tool	Surface/CU-29
173	2	Quartz - primary flakes	
173	2	Porphyritic rhyolite - primary flakes	
173	3	Porphyritic rhyolite - secondary flakes	
154	1	Crystal quartz - uniface	Surface/CU-30
173	1	Argillite - other flake	
201	2	Residual sherds	
173	2	Rose quartz - chunks	Surface/CU-31
173	1	Rose quartz - primary flake	

Acc.	#	Description	Provenience
173	1	Porphyritic rhyolite - primary flake	Surface/CU-31
173	1	Porphyritic rhyolite - secondary flake	
173	1	Porphyritic rhyolite - tertiary flake	
155	1	Rhyolite - retouched flake	Surface/CU-33
169	1	Quartz - fire-cracked rock	
171	1270gr	Quartz - large cobbles	
172	1	Quartz - split cobble	
159	2	Quartz - hammerstones	Surface/CU-35
162	1	Porous metavolcanic - metate	
203	2	Daub	
204	2	Hematite - unmodified chunks	
173	1	Rose quartz - cobble	Surface/CU-37
173	2	Quartz - secondary flakes	
173	1	Rhyolite - primary flake	
173	1	Rhyolite - secondary flake	
201	1	Ceramic sherd	
171	437gr	Quartz - cobbles	Surface/CU-38
173	1	Rhyolite - secondary flake	
203	2	Daub	
159	1	Metavolcanic - hammerstone	Surface/CU-40
171	238gr	Quartz - cobbles	
171	129gr	Quartz - cobbles	Surface/CU-41
173	1	Crystal quartz - secondary flake	Surface/CU-42
169	1	Quartz - fire-cracked rock	Surface/CU-43
169	2	Metavolcanic - fire-cracked rock	
173	2	Flow banded rhyolite - secondary flakes	
155	1	Rhyolite - utilized flake	Surface/CU-44
173	1	Crystal quartz - primary flake	
173	1	Rose quartz - other flake	
201	1	Ceramic sherd	
203	2	Daub	Surface/CU-45
169	2	Quartz - fire-cracked rock	Surface/CU-46
173	2	Quartz - secondary flakes	
173	1	Rhyolite - secondary flake	Surface/CU-47
156	1	Rhyolite - graver	Surface/CU-48
173	1	Quartz - primary flake	
173	1	Porphyritic rhyolite - primary flake	
201	1	Ceramic sherd	Surface/CU-49

Acc.	#	Description	Provenience
173	1	Rhyolite - secondary flake	Surface/CU-50
169	1	Quartz - fire-cracked rock	Surface/CU-53
173	1	Quartz - secondary flake	Surface/CU-54
158	1	Porphyritic rhyolite - drill	Surface/CU-55
201	1	Ceramic sherd	Surface/CU-57
173	1	Rhyolite - secondary flake	Surface/CU-60
161	1	Quartz - mano	Surface/CU-61
203	1	Daub	Surface/CU-63
173	1	Rhyolite - secondary flake	Surface/CU-66
173	1	Porphyritic rhyolite - secondary flake	Surface/CU-67
173	4	Porphyritic rhyolite - secondary flake	Surface/CU-70
201	1	Ceramic sherd	
159	1	Quartz - hammerstone	Surface/CU-72
173	1	Quartz - other flake	
201	2	Ceramic sherds	
173	1	Rhyolite - secondary flake	Surface/CU-73
151	1	Rhyolite - Woodland CSPP	Surface/CU-75
173	1	Rhyolite - secondary flake	
202	2	Residual sherds	
173	1	Rhyolite - secondary flake	Surface/CU-76
201	2	Ceramic sherds	
173	1	Rhyolite - secondary flake	Surface/CU-78
173	1	Porphyritic rhyolite - other flake	Surface/CU-79
173	5	Porphyritic rhyolite - secondary flake	Surface/CU-80
201	1	Ceramic sherd	
151	1	Quartz - small triangular Woodland CSPP	Surface/CU-81
169	1	Quartz - fire-cracked rock	
173	1	Porphyritic rhyolite - secondary flake	
201	2	Ceramic sherds	
173	1	Quartz - secondary flake	Surface/CU-83
173	1	Porphyritic rhyolite secondary flake	
047	1	Corrugated tin roofing	Surface/CU-84
173	1	Porphyritic rhyolite - secondary flake	

Acc.	#	Description	Provenience
151	1	Rhyolite - Badin CSPP	Surface/CU-85
173	1	Crystal quartz - chunk	
173	1	Quartz - chunk	
173	1	Rhyolite - chunk	
173	1	Rhyolite - secondary flake	
173	2	Quartz - chunks	Surface/CU-87
173	1	Porphyritic rhyolite - secondary flake	
173	1	Porphyritic rhyolite - tertiary flake	
173	1	Porphyritic rhyolite - secondary flake	Surface/CU-88
201	1	Ceramic sherd	
173	1	Porphyritic rhyolite - secondary flake	Surface/CU-89
173	1	Rhyolite - secondary flake	Surface/CU-90
173	2	Rhyolite - secondary flakes	Surface/CU-92
171	277gr	Quartz - cobbles	Surface/CU-93
173	1	Rhyolite - secondary flake	
173	1	Rhyolite - secondary flake	Surface/CU-94
152	1	Rhyolite - biface	Surface/CU-104
173	1	Argillite - primary flake	Surface/CU-106
155	1	Argillite - utilized flake	Surface/CU-107
173	1	Quartz - chunk	Surface/CU-108
173	1	Rhyolite - primary flake	
201	1	Ceramic sherd	
173	1	Quartz - chunk	Surface/CU-109
173	1	Rhyolite - secondary flake	
173	1	Quartz - pebble core	Surface/CU-110
173	1	Quartz - chunk	
173	1	Rhyolite - secondary flake	
173	1	Rhyolite - secondary flake	Surface/CU-111
154	1	Quartz - uniface	Surface - Road
173	2	Jasper - primary flakes	
173	2	Chert - secondary flakes	
173	1	Porphyritic rhyolite - chunk	
173	3	Porphyritic rhyolite - primary flakes	
173	18	Porphyritic rhyolite - secondary flakes	
173	22	Rhyolite - secondary flakes	
173	1	Crystal quartz - chunk	
173	2	Quartz - secondary flakes	

Acc.	#	Description	Provenience
150	2	Rhyolite - Kirk CSPP	Surface - General
151	1	Argillite - Woodland CSPP fragment	
152	1	Rhyolite - biface	
152	1	Quartz - biface	
153	1	Argillite - preform	
173	1	Argillite - secondary flake	
201	2	Ceramic sherds	
147	1	Limonite fragment	Unit 1 - Plowzone
150	1	Rhyolite - Kirk serrated CSPP	
150	1	Rhyolite - Guilford CSPP base	
150	2	Rhyolite - Morrow Mountain II CSPP	
151	2	Quartz - Woodland triangular CSPP	
152	4	Rhyolite - biface fragment	
152	4	Rhyolite - unidentified CSPP fragments	
153	1	Crystal quartz - preform	
153	1	Quartz - preform	
153	1	Banded rhyolite - preform	
154	2	Crystal quartz - unifaces	
154	1	Rhyolite - uniface	
155	2	Rhyolite - retouched flake	
155	1	Unidentified lithic material - retouched flake	
155	25	Rhyolite - utilized flakes	
155	1	Micaceous schist - utilized flake	
156	1	Rhyolite - blade	
156	1	Rhyolite - backed blade	
158	4	Rhyolite - perforators/awls	
169	2005gr	Fire-cracked rock	
171	7	Pebble tools	
173	9	Rhyolite - chunks	
173	30	Quartz - chunks	
173	9	Crystal quartz - chunks	
173	1	Jasper - chunk	
173	15	Rhyolite - primary flakes	
173	2	Jasper - primary flakes	
173	1	Unidentified material - primary flake	
173	5	Siliceous argillite - secondary flakes	
173	4	Banded rhyolite - secondary flakes	
173	201	Rhyolite - secondary flakes	
173	1	Smoky quartz - secondary flake	
173	16	Quartz - secondary flakes	
173	12	Jasper - secondary flakes	
173	2	Unidentified material - secondary flakes	
173	3	Banded rhyolite - teriary flakes	
173	86	Rhyolite - tertiary flakes	
173	11	Quartz - tertiary flakes	
173	6	Crystal quartz - tertiary flakes	
173	8	Jasper - tertiary flakes	
173	124	Rhyolite - other flakes	
173	26	Quartz - other flakes	
173	13	Crystal quartz - other flakes	
173	6	Argillite - other flakes	
173	24	Unidentified lithic material - other flakes	
202	30	Prehistoric ceramic - residual sherds	

Acc.	#	Description	Provenience
027	2	Container glass - clear body fragments	Unit 2 - Plowzone
033	7	Clear glass - flat, tapered fragments	
049	1	.22 caliber shell case base	
071	1	Brick fragment	
150	1	Rhyolite - Morrow Mountain II CSPP	
152	2	Quartz - unidentified CSPP edges	
152	1	Rhyolite - unidentified CSPP distal tip	
153	1	Rhyolite - Woodland triangular CSPP preform	
155	14	Rhyolite - utilized flakes	
155	3	Rhyolite - retouched flakes	
156	1	Rhyolite - blade	
158	5	Rhyolite - drills/awls	
162	1	Unidentified metavolcanic material - metate fragment	
165	1	Micaceous schist - axe	
169	2800gr	Fire-cracked rock	
170	1	Rhyolite - chopper	
171	1	Unidentified material - smoothing stone	
171	4	Quartz - split pebbles	
173	6	Rhyolite - chunks	
173	8	Quartz - chunks	
173	1	Crystal quartz - chunk	
173	1	Chert - chunk	
173	17	Rhyolite - primary flakes	
173	183	Rhyolite - secondary flakes	
173	16	Quartz - secondary flakes	
173	10	Crystal quartz - secondary flakes	
173	2	Chert - secondary flakes	
173	47	Rhyolite - tertiary flakes	
173	8	Quartz - tertiary flakes	
173	3	Crystal quartz - tertiary flakes	
173	1	Jasper - tertiary flake	
173	1	Allendale chert - tertiary flake	
173	63	Rhyolite - other flakes	
173	17	Quartz - other flakes	
173	5	Crystal quartz - other flakes	
147	1	Petrified wood	Unit 1 - Level 2
147	1	Geode	
147	2	Limonite/Hematite fragments	
151	1	Quartz - Yadkin CSPP	
151	1	Rhyolite - Woodland stemmed CSPP	
152	1	Rhyolite - unidentified CSPP distal tip	
152	2	Rhyolite - bifaces	
155	7	Rhyolite - utilized flakes	
155	2	Rhyolite - retouched flakes	
157	1	Rhyolite - spokeshave	
158	1	Rhyolite - drill/awl	
160	1	Unidentified lithic material - pecked slab (anvil?)	
165	1	Rhyolite - chipped celt	
169	1887gr	Fire-cracked rock	
171	1	Split pebble	
173	3	Rhyolite - chunks	
173	1	Quartz - chunk	

Acc.	#	Description	Provenience
173	1	Crystal quartz - chunk	Unit 1 - Level 2
173	10	Rhyolite - primary flakes	
173	58	Rhyolite - secondary flakes	
173	3	Quartz - secondary flakes	
173	2	Crystal quartz - secondary flakes	
173	11	Rhyolite - tertiary flakes	
173	1	Crystal quartz - tertiary flake	
173	23	Rhyolite - other flake	
173	1	Quartz - other flake	
150	1	Rhyolite - Stanly CSPP	Surface (FS 99)
152	1	Rhyolite - biface fragment distal end	Surface (FS 100)
165	1	Rhyolite - celt	Surface (FS 101)
165	1	Unidentified lithic material - flaked axe	Surface (FS 102)
150	1	Rhyolite - Guilford CSPP	Surface (FS 103)
150	1	Rhyolite - Stanly CSPP fragment	Unit 3 - Plowzone
151	1	Quartz - Woodland triangular CSPP	
152	2	Rhyolite - unidentified CSPP distal ends	
152	1	Rhyolite - unidentified CSPP	
158	1	Rhyolite - graver	
159	2	Quartz - hammerstones	
163	1	Unidentified metavolcanic material - abrader	
169	1332gr	Fire-cracked rock	
170	1	Rhyolite - chopper	
170	1	Unidentified metavolcanic material - pitted anvil	
171	5	Quartz - split cobble tools	
171	1	Unidentified metavolcanic material - smoothing stone	
172	1	Rhyolite - chisel (?)	
173	2	Rhyolite - chunks	
173	8	Quartz - chunks	
173	1	Crystal quartz - chunk	
173	18	Rhyolite - other flakes	
173	4	Quartz - other flakes	
173	27	Rhyolite - secondary flakes	
173	8	Quartz - secondary flakes	
173	2	Crystal quartz - secondary flakes	
173	12	Rhyolite - tertiary flakes	
173	1	Crystal quartz - tertiary flake	
202	5	Prehistoric ceramic - residual sherds	
204	2	Hematite - chunks	
147	9	Slate fragments	Unit 1 - Level 3
150	1	Porphyritic rhyolite - Morrow Mountain II CSPP	
150	1	Rhyolite - Guilford CSPP	
155	1	Rhyolite - retouched flake	
155	8	Rhyolite - utilized flakes	
157	3	Rhyolite - flake spokeshaves	
158	3	Rhyolite - flake gravers	

Acc.	#	Description	Provenience
158	1	Rhyolite - flake burin	Unit 1 - Level 3
169	390gr	Fire cracked rock	
171	1	Quartz - pebble, smoothing stone (?)	
173	2	Quartz - chunks	
173	1	Crystal quartz - chunk	
173	1	Rhyolite - chunk	
173	1	Quartz - primary flake	
173	12	Rhyolite - primary flakes	
173	2	Crystal quartz - secondary flakes	
173	3	Quartz - secondary flakes	
173	94	Rhyolite - secondary flakes	
173	1	Crystal quartz - tertiary flake	
173	33	Rhyolite - tertiary flakes	
173	6	Quartz - other flakes	
173	24	Rhyolite - other flakes	
201	1	Ceramic sherd	
202	1	Residual sherd	
204	1	Hematite chunk	
155	2	Rhyolite - utilized flakes	Feature 1
169	120gr	Fire cracked rock	
173	1	Rhyolite - primary flake	
173	10	Rhyolite - secondary flakes	
173	2	Rhyolite - tertiary flakes	
173	2	Rhyolite - other flakes	
173	2	Crystal quartz - secondary flakes	
155	3	Rhyolite - utilized flakes	Feature 3
157	1	Rhyolite - spokeshave	
169	120gr	Fire cracked rock	
172	1	Unidentified lithic material - accretion	
173	1	Rhyolite - primary flake	
173	15	Rhyolite - secondary flakes	
173	2	Rhyolite - tertiary flakes	
173	5	Rhyolite - other flakes	
173	3	Crystal quartz - secondary flakes	
173	1	Quartz - other flake	
201	3	Ceramic sherds	
202	2	Residual sherds	
147	1	Slate fragment	Unit 2 - Level 2
147	1	Unidentified lithic material - geode fragment	
152	3	Rhyolite - bifaces	
153	3	Rhyolite - preforms	
154	1	Quartz - unifacial side scraper	
154	1	Rhyolite - unifacial side scraper	
155	12	Rhyolite - utilized flakes	
155	2	Rhyolite - retouched flakes	
156	3	Rhyolite - blades	
158	2	Quartz - burins	
158	4	Rhyolite - flake gravers	
159	1	Metavolcanic - hammerstone	
169	10644gr	Fire cracked rock	

Acc.	#	Description	Provenience
170	1	Rhyolite - chopper	Unit 2 - Level 2
170	1	Rhyolite - chopper/knife	
173	3	Unidentified lithic material - chunks	
173	9	Unidentified lithic material - other flakes	
173	24	Rhyolite - primary flakes	
173	141	Rhyolite - secondary flakes	
173	40	Rhyolite - tertiary flakes	
173	30	Rhyolite - other flakes	
173	8	Quartz - secondary flakes	
173	5	Quartz - tertiary flakes	
173	3	Quartz - other flakes	
173	9	Crystal quartz - secondary flakes	
173	3	Crystal quartz - tertiary flakes	
174	1	Steatite fragment	
201	8	Ceramic sherds	
202	10	Residual sherds	
301	1	Bone fragment	
150	2	Rhyolite - Morrow Mountain II CSPP	Unit 4 - Plowzone
151	5	Rhyolite - Woodland triangular CSPP	
151	1	Rhyolite - Woodland stemmed CSPP	
151	1	Crystal quartz - Woodland triangular CSPP	
152	2	Rhyolite - small lanceolate bifaces	
152	4	Rhyolite - unidentified CSPP fragments	
152	2	Quartz - unidentified CSPP fragments	
153	5	Rhyolite - preforms	
153	1	Crystal quartz - preform	
154	4	Quartz - unifaces	
154	1	Crystal quartz - uniface	
155	13	Rhyolite - utilized flakes	
155	1	Metavolcanic - utilized flake	
155	6	Quartz - utilized flakes	
155	3	Crystal quartz - utilized flakes	
155	3	Rhyolite - retouched flakes	
155	2	Metavolcanic - retouched flakes	
156	1	Rhyolite - blade	
156	1	Quartz - blade	
158	1	Rhyolite - Kirk bifacial drill	
158	1	Jasper - perforator/awl	
158	1	Quartz - graver/perforator	
159	1	Quartz - hammerstone	
169	1854gr	Fire cracked rock	
171	1	Rhyolite - end scraper/gouge (reworked Guilford CSPP)	
173	3	Crystal quartz - cores	
173	19	Crystal quartz - secondary flakes	
173	4	Crystal quartz - other flakes	
173	2	Quartz - cores	
173	9	Quartz - chunks	
173	9	Quartz - primary flakes	
173	23	Quartz - secondary flakes	
173	19	Quartz - tertiary flakes	
173	1	Smoky quartz - secondary flake	
173	9	Jasper - secondary flakes	

Acc.	#	Description	Provenience
173	5	Rhyolite - chunks	Unit 4 - Plowzone
173	45	Rhyolite - primary flakes	
173	251	Rhyolite - secondary flakes	
173	80	Rhyolite - tertiary flakes	
173	46	Rhyolite - other flakes	
173	9	Argillite - secondary flakes	
173	8	Argillite - other flakes	
173	2	Allendale chert - secondary flakes	
173	25	Basalt - other flakes	
174	1	Steatite fragment (non-vessel)	
179	3	Steatite - bowl fragments	
201	48	Ceramic sherds	
202	51	Residual sherds	
204	5	Hematite fragments	
301	1	Shell (<u>Busycon</u> sp.) fragment	
151	1	Rhyolite - Yadkin CSPP	Surface (FS 111)
151	1	Rhyolite - Yadkin CSPP	Surface (FS 112)
150	1	Rhyolite - unidentified Archaic stemmed CSPP	Surface (FS 113)
150	1	Rhyolite - Kirk CSPP	Surface (FS 114)
150	1	Rhyolite - bifurcate CSPP	Unit 4 - Level 2
150	1	Rhyolite - unidentified Archaic CSPP	
150	1	Rhyolite - Big Sandy CSPP	
150	1	Rhyolite - Morrow Mountain II CSPP	
151	1	Quartz - Woodland triangular CSPP	
152	2	Phyolite - unidentified CSPP fragments	
152	2	Rhyolite - bifaces	
153	3	Rhyolite - preform fragments	
154	1	Rhyolite - unifaces	
155	1	Quartz - retouched flake	
155	3	Rhyolite - retouched flakes	
155	6	Rhyolite - utilized flakes	
155	1	Quartz - utilized flake	
155	1	Unidentified lithic material - utilized flake	
156	2	Rhyolite - blades	
157	1	Rhyolite - spokeshave	
158	2	Rhyolite - gravers/perforators	
159	2	Quartz - hammerstones	
162	1	Quartz - metate fragment	
169	2221gr	Fire cracked rock	
170	1	Argillite - chopper	
171	1	Rhyolite - wedge/chisel	
173	4	Quartz - chunks	
173	1	Quartz - primary flake	
173	6	Quartz - secondary flake	
173	4	Quartz - other flakes	
173	1	Crystal quartz - chunk	
173	10	Crystal quartz - secondary flakes	
173	1	Crystal quartz - other flake	
173	2	Argillite - primary flakes	

Acc.	#	Description	Provenience
173	9	Argillite - secondary flakes	Unit 4 - Level 2
173	2	Rhyolite - chunks	
173	27	Rhyolite - primary flakes	
173	118	Rhyolite - secondary flakes	
173	21	Rhyolite - tertiary flakes	
173	18	Rhyolite - other flakes	
173	1	Jasper - primary flake	
173	8	Unidentified lithic material - other flakes	
179	17	Steatite vessel sherds	
201	21	Ceramic sherds	
202	15	Residual sherds	
204	5	Hematite fragments	
150	1	Rhyolite - Morrow Mountain II CSPP	Unit 2 - Level 3
152	1	Rhyolite - biface fragment	
153	1	Rhyolite - Savannah River preform	
154	1	Crystal quartz - uniface	
155	3	Rhyolite - retouched flakes	
155	5	Rhyolite - utilized flakes	
155	1	Quartz - utilized flake	
158	1	Quartz - awl/graver	
159	1	Quartz - hammerstone	
161	1	Quartz - mano	
169	4794gr	Fire cracked rock	
170	1	Metavolcanic - anvil	
170	4	Quartz - split cobbles	
173	3	Rhyolite - chunks	
173	24	Rhyolite - primary flakes	
173	168	Rhyolite - secondary flakes	
173	18	Rhyolite - tertiary flakes	
173	33	Rhyolite - other flakes	
173	2	Crystal quartz - chunks	
173	7	Crystal quartz - secondary flakes	
173	3	Crystal quartz - tertiary flakes	
173	3	Quartz - primary flakes	
173	6	Quartz - secondary flakes	
173	7	Quartz - other flakes	
173	14	Unidentified lithic material - other flakes	
202	2	Residual sherds	
173	3	Rhyolite - primary flakes	Fea. 4 - surface
173	7	Rhyolite - secondary flakes	
173	1	Quartz - secondary flake	
173	1	Quartz - other flake	
173	1	Unidentified lithic material - other flake	
202	2	Residual sherds	
150	1	Rhyolite - Stanly CSPP	Fea. 4 - fill
169	47gr	Fire cracked rock	
170	1	Unidentified lithic material - chopper	
171	1	Quartz - split cobble	
173	8	Rhyolite - primary flakes	

Acc.	#	Description	Provenience
173	41	Rhyolite - secondary flakes	Feature 4 - fill
173	4	Rhyolite - tertiary flakes	
173	12	Rhyolite - other flakes	
173	5	Crystal quartz - secondary flakes	
173	1	Crystal quartz - other flake	
173	3	Quartz - secondary flakes	
173	1	Quartz - other flake	
201	6	Ceramic sherds	
204	1	Limonite fragment	
163	1	Basalt - abrader	Feature 5
169	18gr	Fire cracked rock	
171	2	Quartz - split pebbles	
173	3	Rhyolite - primary flakes	
173	8	Rhyolite - secondary flakes	
173	2	Rhyolite - tertiary flakes	
173	3	Rhyolite - other flakes	
173	2	Quartz - secondary flakes	
173	1	Quartz - other flakes	
173	2	Crystal quartz - other flakes	
173	2	Unidentified lithic material - other flakes	
202	2	Residual sherds	
150	1	Rhyolite - Morrow Mountain II CSPP	Unit 4 - Level 3(1)
153	1	Rhyolite - Hardaway preform	
155	1	Rhyolite - retouched flake	
158	1	Rhyolite - bifacial drill fragment	
159	1	Basalt - hammerstone	
169	442gr	Fire cracked rock	
170	1	Quartz - split pebble	
173	9	Rhyolite - primary flakes	
173	49	Rhyolite - secondary flakes	
173	12	Rhyolite - tertiary flakes	
173	5	Rhyolite - other flakes	
173	1	Argillite - primary flake	
173	1	Argillite - secondary flakes	
173	1	Quartz - primary flake	
173	1	Quartz - secondary flake	
173	1	Smoky quartz - secondary flake	
173	3	Crystal quartz - secondary flakes	
173	1	Unidentified lithic material - other flake	
179	1	Steatite vessel sherd	
169	34gr	Fire cracked rock	Unit 4 - Level 3(2)
170	1	Rhyolite - chopper	
173	3	Rhyolite - chunks	
173	19	Rhyolite - secondary flakes	
173	5	Rhyolite - tertiary flakes	
173	2	Quartz - chunks	
173	1	Quartz - secondary flakes	
173	1	Crystal quartz - tertiary flake	

Acc.	#	Description	Provenience
153	1	Rhyolite - preform base	Surface (FS 120)
153	1	Rhyolite - preform	Surface (FS 121)
153	1	Rhyolite - preform	Surface (FS 122)
153	1	Rhyolite - preform	Surface (FS 123)
150	1	Basalt - Guilford CSPP	Surface (FS 124)
152	1	Quartz - biface	Surface (FS 125)
152	1	Rhyolite - biface fragment	Surface (FS 126)
165	1	Metavolcanic - celt/ax	Surface (FS 127)
149	1	Rhyolite - Hardaway-Dalton CSPP base	Unit 5 - Plowzone
151	1	Jasper - Woodland triangular CSPP	
151	1	Quartz - Woodland triangular CSPP	
152	1	Crystal quartz - biface fragment	
152	1	Rhyolite - biface fragment	
153	1	Quartzite - preform fragment	
154	1	Rhyolite - uniface	
154	1	Crystal quartz - uniface	
155	1	Crystal quartz - retouched flake	
155	1	Rhyolite - utilized flake	
158	1	Rhyolite - bifacial drill	
159	2	Quartz - hammerstones	
168	1	Slate - atlatl handle	
169	107gr	Fire cracked rock	
173	2	Rhyolite - chunks	
173	27	Rhyolite - primary flakes	
173	124	Rhyolite - secondary flakes	
173	43	Rhyolite - tertiary flakes	
173	24	Rhyolite - other flakes	
173	3	Crystal quartz - chunks	
173	3	Crystal quartz - secondary flakes	
173	3	Quartz - secondary flakes	
173	1	Unidentified lithic material - chunk	
173	11	Unidentified lithic material - other flakes	
201	36	Ceramic sherds	
202	27	Residual sherds	
147	1	Geode	Unit 6 -Plowzone
150	1	Rhyolite - Guilford CSPP	
151	1	Rhyolite - Woodland triangular CSPP	
151	1	Rhyolite - Woodland stemmed CSPP	
152	1	Crystal quartz - CSPP fragment	
152	1	Quartz - CSPP fragment	
153	2	Rhyolite - preforms	
154	3	Quartz - pebble unifaces	
155	1	Rhyolite - retouched flake	
158	3	Rhyolite - bifacial drills	

Acc.	#	Description	Provenience
169	882gr	Fire cracked rock	Unit 6 - Plowzone
173	3	Rhyolite - chunks	
173	21	Rhyolite - primary flakes	
173	83	Rhyolite - secondary flakes	
173	19	Rhyolite - tertiary flakes	
173	14	Rhyolite - other flakes	
173	3	Crystal quartz - chunks	
173	19	Crystal quartz - secondary flakes	
173	3	Crystal quartz - other flakes	
173	1	Quartz - primary flake	
173	7	Quartz - secondary flakes	
173	2	Quartz - other flakes	
173	1	Argillite - chunk	
173	2	Argillite - other flakes	
173	1	Allendale chert - secondary flake	
173	4	Unidentified lithic material - other flakes	
201	15	Ceramic sherds	
202	20	Residual sherds	
037	1	Wire nail fragment	Unit 7 - Plowzone
152	1	Rhyolite - CSPP fragment	
169	360gr	Fire cracked rock	
171	1	Quartz - split cobble	
173	1	Rhyolite - chunk	
173	5	Rhyolite - primary flakes	
173	54	Rhyolite - secondary flakes	
173	10	Rhyolite - tertiary flakes	
173	16	Rhyolite - other flakes	
173	3	Crystal quartz - chunks	
173	3	Crystal quartz - secondary flake	
173	1	Quartz - secondary flake	
173	3	Argillite - secondary flakes	
173	1	Argillite - other flake	
173	3	Chert - secondary flakes	
201	34	Ceramic sherds	
202	18	Residual sherds	
151	2	Rhyolite - Woodland triangular CSPP	Unit 8 - Plowzone
152	1	Rhyolite - CSPP fragment	
152	1	Quartz - blade fragment	
154	2	Crystal quartz - uniface fragments	
155	1	Rhyolite - utilized flake	
155	1	Quartz - utilized flake	
157	1	Rhyolite - spokeshave	
158	2	Rhyolite - bifacial drills	
158	1	Quartz - pebble awl	
169	929gr	Fire cracked rock	
171	1	Quartz - split pebble	
171	1	Quartz - bifacial denticulate/saw	
173	26	Rhyolite - primary flakes	
173	66	Rhyolite - secondary flakes	
173	11	Rhyolite - tertiary flakes	
173	26	Rhyolite - other flakes	

Acc.	#	Description	Provenience
173	4	Crystal quartz - secondary flakes	Unit 8 - Plowzone
173	1	Quartz - primary flake	
173	1	Quartz - other flake	
173	2	Argillite - other flakes	
173	5	Unidentified lithic material - secondary flakes	
173	2	Unidentified lithic material - other flakes	
201	22	Ceramic sherds	
202	28	Residual sherds	
301	1	Bone fragment	
036	1	Cut nail	Feature 6
150	1	Rhyolite - Savannah River CSPP	
150	1	Rhyolite - Archaic dart point	
151	2	Rhyolite - Yadkin CSPP	
153	1	Rhyolite - Morrow Mountain II preform	
158	1	Rhyolite - flake perforator	
159	1	Unidentified lithic material - hammerstone	
169	1634gr	Fire cracked rock	
173	2	Rhyolite - primary flakes	
173	28	Rhyolite - secondary flakes	
173	8	Rhyolite - tertiary flakes	
173	19	Rhyolite - other flakes	
173	1	Crystal quartz - core	
173	3	Crystal quartz - secondary flakes	
173	2	Quartz - secondary flakes	
173	1	Jasper - secondary flake	
201	18	Ceramic sherds	
202	11	Residual sherds	
147	1	Quartz - pebble	Unit 7 - Level 2
151	1	Basalt - Yadkin CSPP	
163	2	Unidentified lithic material - abraders	
169	353gr	Fire cracked rock	
173	2	Rhyolite - secondary flakes	
173	2	Rhyolite - other flakes	
201	1	Ceramic sherd	
152	1	Rhyolite - CSPP fragment	Unit 8 - Level 2
155	2	Rhyolite - utilized flakes	
158	2	Rhyolite - drills	
159	1	Unidentified lithic material - hammerstone	
169	1039gr	Fire cracked rock	
171	1	Quartz - split pebble	
173	12	Rhyolite - primary flakes	
173	52	Rhyolite - secondary flakes	
173	10	Rhyolite - tertiary flakes	
173	13	Rhyolite - other flakes	
173	1	Crystal quartz - chunk	
173	3	Crystal quartz - secondary flakes	
173	1	Crystal quartz - other flake	
173	1	Quartz - other flake	
173	4	Chert - secondary flakes	

Acc.	#	Description	Provenience
173	4	Unidentified lithic material - other flakes	Unit 8 - Level 2
201	5	Ceramic sherds	
202	7	Residual sherds	
036	2	Cut nails	Feature 7 (Unit 8)
150	1	Rhyolite - Savannah River CSPP	
154	1	Unidentified lithic material - uniface	
155	1	Rhyolite - retouched flake	
155	2	Rhyolite - utilized flakes	
158	1	Rhyolite - graver	
159	1	Quartz - hammerstone	
169	49gr	Fire cracked rock	
173	5	Rhyolite - chunks	
173	12	Rhyolite - primary flakes	
173	70	Rhyolite - secondary flakes	
173	16	Rhyolite - tertiary flakes	
173	18	Rhyolite - other flakes	
173	3	Quartz - other flakes	
173	6	Crystal quartz - secondary flakes	
173	1	Chert - chunk	
173	4	Chert - secondary flakes	
173	2	Unidentified lithic material - chunks	
173	9	Unidentified lithic material - other flakes	
201	18	Ceramic sherds	
202	32	Residual sherds	
147	1	Petrified wood	Unit 6 - Level 2
147	1	Argillite specimen	
152	1	Rhyolite - biface	
169	724gr	Fire cracked rock	
173	1	Rhyolite - chunk	
173	2	Rhyolite - tertiary flakes	
152	1	Rhyolite - biface	Unit 8 - Level 3
155	1	Rhyolite - retouched flake	
169	18gr	Fire cracked rock	
173	2	Rhyolite - other flakes	
173	16	Rhyolite - secondary flakes	
173	6	Rhyolite - tertiary flakes	
173	1	Quartz - secondary flake	
173	3	Black chert - secondary flakes	
173	3	Unidentified lithic material - other flakes	
201	1	Ceramic sherd	
169	5482gr	Fire cracked rock	Unit 6 - Level 3
173	9	Rhyolite - secondary flakes	
202	1	Residual sherd	
147	1	Petrified wood	Unit 5 - Level 2
153	1	Crystal quartz - Yadkin preform	
160	1	Unidentified lithic material - nutting stone	
160	1	Quartzite - pitted cobble	
161	1	Unidentified lithic material - mano	

Acc.	#	Description	Provenience
169	610gr	Fire cracked rock	Unit 5 - Level 2
170	1	Porphyritic - chopper	
171	1	Rhyolite - backed blade	
171	1	Quartz - pebble with use wear	
173	6	Rhyolite - primary flakes	
173	67	Rhyolite - secondary flakes	
173	14	Rhyolite - tertiary flakes	
173	19	Rhyolite - other flakes	
173	4	Crystal quartz - secondary flakes	
173	1	Quartz - primary flake	
173	4	Quartz - secondary flakes	
173	7	Basalt - other flakes	
173	1	Unidentified lithic material - secondary flake	
174	1	Steatite fragment (non-vessel)	
201	3	Ceramic sherds	
202	10	Residual sherds	
173	4	Rhyolite - primary flakes	Feature 7
173	3	Rhyolite - secondary flakes	
173	1	Chert - primary flake	
201	1	Ceramic sherd	
202	2	Residual sherds	
152	1	Jasper - biface edge	Unit 7 - Lev. 2&3
156	1	Rhyolite - blade	
158	1	Rhyolite - drill tip	
173	1	Rhyolite - primary flake	
173	1	Rhyolite - secondary flake	
201	1	Ceramic sherd	
202	2	Residual sherds	
150	1	Rhyolite - Morrow Mountain II CSPP	Unit 9 - Plowzone
150	1	Rhyolite - Guilford CSPP fragment	
151	2	Rhyolite - Woodland triangular CSPP	
151	1	Rhyolite - Randolph CSPP	
152	1	Rhyolite - biface	
152	6	Rhyolite - biface fragments	
153	1	Rhyolite - preform base	
155	4	Rhyolite - retouched flakes	
155	2	Quartz - retouched flakes	
155	6	Rhyolite - utilized flakes	
155	1	Crystal quartz - utilized flake	
156	4	Rhyolite - blades	
156	2	Quartz - blades	
158	1	Rhyolite - bifacial drill fragment	
158	3	Quartz - gravers	
159	1	Quartz - hammerstone	
162	2	Metavolcanic - metate fragments	
169	7154gr	Fire cracked rock	
170	1	Quartzite - anvil	
171	6	Quartz - split cobble fragments	
173	8	Rhyolite - chunks	
173	19	Rhyolite - primary flakes	

Acc.	#	Description	Provenience
173	302	Rhyolite - secondary flakes	Unit 9 - Plowzone
173	59	Rhyolite - tertiary flakes	
173	105	Rhyolite - other flakes	
173	34	Quartz - chunks	
173	15	Quartz - primary flakes	
173	70	Quartz - secondary flakes	
173	11	Quartz - tertiary flakes	
173	22	Quartz - other flakes	
173	3	Jasper - secondary flakes	
173	15	Smoky quartz - primary flakes	
173	9	Smoky quartz - other flakes	
173	44	Crystal quartz - secondary flakes	
173	10	Crystal quartz - other flakes	
173	13	Argillite - other flakes	
173	1	Unidentified lithic material - chunk	
173	1	Unidentified lithic material - secondary flake	
173	15	Unidentified lithic material - other flakes	
201	48	Ceramic sherds	
202	46	Residual sherds	
301	1	Bone fragment	
147	1	Petrified wood	Unit 10 - Plowzone
147	1	Quartz crystal	
150	3	Rhyolite - Morrow Mountain II CSPP	
150	1	Rhyolite - Guilford CSPP	
150	1	Rhyolite - Savannah River CSPP	
151	2	Rhyolite - Uwharrie CSPP	
151	1	Rhyolite - Caraway CSPP	
151	1	Quartz - Caraway CSPP	
151	1	Rhyolite - Pee Dee CSPP	
151	11	Quartz - Woodland triangular CSPP	
151	5	Rhyolite - Woodland triangular CSPP	
152	3	Rhyolite - unidentified CSPP frags	
152	6	Quartz - biface fragments	
153	1	Smoky quartz - Morrow Mountain II preform	
153	2	Rhyolite - Woodland triangular preforms	
153	8	Rhyolite - biface preforms	
154	2	Quartz - unifaces	
154	1	Unidentified lithic material - uniface	
155	1	Rhyolite - retouched flake	
155	5	Rhyolite - utilized flakes	
156	2	Rhyolite - blades	
156	1	Crystal quartz - blade	
156	3	Quartz - blades	
158	2	Rhyolite - bifacial drills	
158	1	Rhyolite - flake drill	
158	1	Quartz - flake drill	
159	1	Quartz - hammerstone	
169	4540gr	Fire cracked rock	
170	2	Rhyolite - choppers	
170	1	Quartz - unidentified tool	
171	1	Smoky quartz - pebble scraper	
171	9	Quartz - split pebbles	

Acc.	#	Description	Provenience
173	4	Rhyolite - cores	Unit 10 - Plowzone
173	57	Rhyolite - primary flakes	
173	511	Rhyolite - secondary flakes	
173	61	Rhyolite - tertiary flakes	
173	120	Rhyolite - other flakes	
173	8	Crystal quartz - chunks	
173	47	Crystal quartz - secondary flakes	
173	29	Crystal quartz - tertiary flakes	
173	12	Crystal quartz - other flakes	
173	1	Quartz - core	
173	51	Quartz - chunks	
173	17	Quartz - primary flakes	
173	158	Quartz - secondary flakes	
173	21	Quartz - secondary flakes	
173	55	Quartz - other flakes	
173	13	Smoky quartz - primary flakes	
173	17	Smoky quartz - secondary flakes	
173	1	Smoky quartz - other flake	
173	2	Jasper - core	
173	4	Jasper - secondary flakes	
173	2	Jasper - other flake	
173	15	Argillite - other flakes	
173	17	Basalt - other flake	
174	3	Steatite - fragments	
179	8	Steatite sherds	
201	86	Ceramic sherds	
202	65	Residual sherds	
204	2	Limonite fragments	
301	1	Turtle shell	
301	22	Bone fragments	
302	1	Charred hickory nut shell	
147	1	Petrified wood fragment	Unit 11 - Plowzone
147	1	Conglomerate fragment	
150	1	Rhyolite - Palmer CSPP	
151	2	Rhyolite - Yadkin CSPP	
151	1	Rhyolite - Caraway CSPP	
151	1	Rhyolite - Woodland triangular CSPP	
151	1	Rhyolite - Woodland stemmed CSPP	
151	1	Jasper - Woodland triangular CSPP	
151	2	Quartz - Woodland triangular CSPP	
151	1	Quartz - Pee Dee pentagonal CSPP	
152	4	Quartz - unidentified CSPP fragments	
152	1	Rhyolite - unidentified CSPP fragment	
152	5	Rhyolite - biface fragments	
152	1	Rhyolite - biface	
152	1	Crystal quartz - biface fragment	
153	2	Rhyolite - Yadkin preforms	
153	1	Quartz - Woodland triangular preform	
153	2	Rhyolite - lanceolate preforms	
154	1	Crystal quartz - uniface side scraper	
154	1	Quartz - pebble uniface end/side scraper	
154	1	Quartz - pebble uniface end scraper	

Acc.	#	Description	Provenience
155	3	Rhyolite - retouched flakes	Unit 11 - Plowzone
158	1	Rhyolite - biface drill	
158	7	Rhyolite - flake drills	
159	2	Quartz - hammerstones	
162	1	Rhyolite - mano fragment	
169	5606gr	Fire cracked rock	
171	2	Rhyolite - lanceolate tools	
171	1	Quartz - split pebble	
172	2	Rhyolite - unidentified tools	
173	3	Rhyolite - cores	
173	7	Rhyolite - chunks	
173	35	Rhyolite - primary flakes	
173	330	Rhyolite - secondary flakes	
173	47	Rhyolite - tertiary flakes	
173	136	Rhyolite - other flakes	
173	1	Quartz - pebble core	
173	1	Quartz - primary flakes	
173	64	Quartz - secondary flakes	
173	9	Quartz - tertiary flakes	
173	35	Quartz - other flakes	
173	36	Quartz - chunks	
173	15	Crystal quartz - chunks	
173	26	Crystal quartz - secondary flakes	
173	7	Crystal quartz - tertiary flakes	
173	6	Crystal quartz - other flakes	
173	1	Jasper - chunk	
173	2	Jasper - primary flakes	
173	18	Jasper - secondary flakes	
173	2	Argillite - secondary flakes	
173	5	Argillite - other flakes	
173	3	Chert - tertiary flakes	
173	12	Basalt - other flakes	
173	1	Unidentified lithic material - core	
173	11	Unidentified lithic material - other flakes	
173	1	Basalt - other flake	
175	1	Ceramic disc	
201	58	Ceramic sherds	
202	97	Residual sherds	
204	4	Hematite fragment	
204	1	Limonite - fragment	
301	15	Bone fragments	
150	1	Rhyolite - Morrow Mountain II CSPP	Unit 11 - Level 2
150	2	Rhyolite - Guilford CSPP	
151	1	Quartz - Woodland triangular CSPP	
151	1	Rhyolite - Woodland stemmed CSPP	
152	4	Rhyolite - unidentified CSPP fragments	
152	3	Rhyolite - biface fragment	
152	1	Quartz - biface fragment	
153	2	Rhyolite - preform fragments	
154	1	Rhyolite - uniface	
154	1	Quartz - split pebble uniface	
155	1	Rhyolite - retouched flake	

Acc.	#	Description	Provenience
155	8	Rhyolite - utilized flakes	Unit 11 - Level 2
157	2	Rhyolite - spokeshaves	
158	1	Rhyolite - graver	
158	1	Crystal quartz - graver	
159	1	Quartz - hammerstone	
169	3649gr	Fire cracked rock	
171	3	Quartz - split cobble fragments	
173	21	Rhyolite - primary flakes	
173	83	Rhyolite - secondary flakes	
173	13	Rhyolite - tertiary flakes	
173	46	Rhyolite - other flakes	
173	6	Quartz - chunks	
173	2	Quartz - primary flakes	
173	7	Quartz - secondary flakes	
173	10	Quartz - other flakes	
173	3	Crystal quartz - secondary flakes	
173	4	Crystal quartz - other flakes	
173	1	Jasper - primary flake	
173	2	Jasper - secondary flakes	
173	4	Argillite - other flakes	
173	10	Basalt - other flakes	
173	1	Unidentified lithic material - other flake	
201	20	Ceramic sherds	
202	9	Residual sherds	
204	1	Hematite fragment	
300	1	Hickory nut shell fragment	
150	1	Rhyolite - Guilford CSPP fragment	Unit 9 - Level 2
150	2	Rhyolite - Morrow Mountain II CSPP	
151	1	Chert - small Woodland triangular CSPP	
152	1	Rhyolite - biface base	
153	1	Rhyolite - preform fragment	
153	1	Argillite - preform	
153	1	Quartz - preform fragment	
155	3	Rhyolite - utilized flakes	
155	1	Rhyolite - retouched flake	
159	1	Metavolcanic - hammerstone	
159	1	Quartzite - hammerstone	
169	9332gr	Fire cracked rock	
173	4	Rhyolite - chunks	
173	31	Rhyolite - primary flakes	
173	139	Rhyolite - seconadry flakes	
173	24	Rhyolite - tertiary flakes	
173	52	Rhyolite - other flakes	
173	3	Quartz - chunks	
173	3	Quartz - secondary flakes	
173	8	Quartz - other flakes	
173	3	Crystal quartz - chunks	
173	8	Crystal quartz - secondary flakes	
173	4	Crystal quartz - other flakes	
173	1	Smoky quartz - primary flakes	
173	10	Smoky quartz - seconadry flakes	
173	16	Smoky quartz - other flakes	

Acc.	#	Description	Provenience
173	3	Basalt - other flakes	Unit 9 - Level 2
201	10	Ceramic sherds	
202	3	Residual sherds	
204	5	Hematite chunks	
301	1	Bone fragment	
150	1	Rhyolite - Palmer CSPP fragment	Unit 10 - Level 2
150	2	Rhyolite - Guilford CSPP	
151	1	Quartz - Woodland triangular CSPP	
151	1	Rhyolite - Badin CSPP	
152	1	Rhyolite - unidentified CSPP fragment	
152	1	Rhyolite - biface	
153	1	Rhyolite - preform base	
154	1	Rhyolite - unifaciallly retouched blade-like flake	
154	1	Crystal quartz - uniface	
155	1	Rhyolite - retouched flake (knife/scraper)	
155	4	Rhyolite - utilized flakes	
155	1	Basalt - utilized flake	
158	1	Quartz - drill	
158	1	Rhyolite - graver	
159	2	Quartz - hammerstones	
163	1	Unidentified lithic material - abrader	
169	1497gr	Fire cracked rock	
171	1	Quartz - split pebble	
171	1	Quartz - retouched split pebble	
173	3	Rhyolite - chunks	
173	6	Rhyolite - primary flakes	
173	56	Rhyolite - secondary flakes	
173	5	Rhyolite - tertiary flakes	
173	40	Rhyolite - other flakes	
173	2	Quartz - primary flakes	
173	6	Quartz - other flakes	
173	1	Crystal quartz - chunk	
173	9	Crystal quartz - secondary flakes	
173	1	Crystal quartz - other flake	
173	2	Smoky quartz - chunks	
173	10	Smoky quartz - secondary flakes	
173	1	Felsite - chunk	
173	5	Basalt - other flakes	
201	3	Ceramic sherds	
152	1	Rhyolite - biface fragment	Unit 11 - Level 3
154	1	Quartz - uniface	
155	1	Quartz - retouched flake	
155	3	Rhyolite - utilized flakes	
158	1	Rhyolite - graver	
163	1	Unidentified lithic material - abrader	
169	74gr	Fire cracked rock	
173	2	Rhyolite - chunks	
173	4	Rhyolite - primary flakes	
173	14	Rhyolite - secondary flakes	
173	5	Rhyolite - tertiary flakes	
173	16	Rhyolite - other flakes	

Acc.	#	Description	Provenience
173	1	Quartz - chunk	Unit 11 - Level 3
173	8	Quartz - secondary flakes	
173	2	Quartz - other flakes	
173	3	Basalt - other flakes	
173	2	Slate - other flakes	
173	1	Unidentified lithic material - secondary flake	
201	1	Ceramic sherd	
151	1	Rhyolite - Woodland serrated triangular CSPP frag	Feature 8
173	2	Rhyolite - secondary flakes	
173	2	Rhyolite - other flakes	
173	1	Jasper secondary flake	
201	1	Ceramic sherd	
153	1	Rhyolite - preform fragment	Unit 10 - Level 3
155	1	Rhyolite - utilized flake	
169	113gr	Fire cracked rock	
173	5	Rhyolite - secondary flakes	
173	4	Rhyolite - tertiary flakes	
173	4	Rhyolite - other flakes	
173	1	Quartz - secondary flake	
173	1	Crystal quartz - secondary flake	
173	2	Unidentified lithic material - chunks	
173	1	Unidentified lithic material - secondary flake	
154	1	Quartz - uniface	Unit 9 - cleaning
155	1	Quartz - retouched flake	
155	9	Rhyolite - utilized flakes	
153	1	Quartz - pebble smoothing stone	
169	165gr	Fire cracked rock	
173	2	Rhyolite - chunks	
173	1	Rhyolite - primary flake	
173	10	Rhyolite - secondary flakes	
173	5	Rhyolite - tertiary flakes	
173	12	Rhyolite - other flakes	
173	1	Quartz - primary flake	
173	1	Quartz - secondary flake	
173	5	Crystal quartz - secondary flakes	
173	2	Argillite - other flakes	
173	1	Unidentified lithic material - secondary flake	
173	4	Unidentified lithic material - other flakes	
201	5	Ceramic sherds	
202	3	Residual sherds	
147	1	Slate fragment	Unit 12 - Plowzone
150	1	Rhyolite - Savannah River CSPP fragment	
150	1	Rhyolite - stemmed Archaic CSPP (Lamoka-like)	
151	1	Rhyolite - Woodland dart point	
151	2	Quartz - Woodland CSPP	
151	1	Rhyolite - Randolph CSPP	
151	1	Rhyolite - stemmed Woodland CSPP fragment	
152	4	Rhyolite - unidentified CSPP fragments	
153	2	Rhyolite - preforms	
154	2	Crystal quartz - unifaces	

Acc.	#	Description	Provenience
154	1	Basalt - uniface	Unit 12 - Plowzone
155	2	Rhyolite - retouched flakes	
155	7	Rhyolite - utilized flakes	
155	5	Quartz - utilized flakes	
156	1	Quartz - blade	
157	1	Rhyolite - spokeshave	
159	1	Quartz - hammerstone	
163	1	Unidentified lithic material - abrader	
169	822gr	Fire cracked rock	
173	2	Rhyolite - chunks	
173	26	Rhyolite - primary flakes	
173	98	Rhyolite - secondary flakes	
173	15	Rhyolite - tertiary flakes	
173	39	Rhyolite - other flakes	
173	2	Crystal quartz - chunks	
173	8	Crystal quartz - secondary flakes	
173	2	Crystal quartz - other flakes	
173	9	Quartz - chunks	
173	6	Quartz - primary flakes	
173	7	Quartz - secondary flakes	
173	9	Quartz - other flakes	
173	1	Jasper - chunk	
173	2	Jasper - other flake	
173	5	Jasper - secondary flakes	
173	7	Basalt - other flakes	
173	1	Basalt - secondary flakes	
173	8	Slate - other flakes	
173	1	Unidentified lithic material - other flake	
201	18	Ceramic sherds	
202	23	Residual sherds	
204	3	Hematite fragments	
301	1	Burned bone	
150	1	Rhyolite - Morrow Mountain I CSPP	Unit 13 - Plowzone
150	1	Rhyolite - Guilford CSPP	
150	1	Rhyolite - Stanly CSPP	
151	1	Quartz - Woodland triangular CSPP	
151	1	Rhyolite - Woodland triangular CSPP	
151	1	Rhyolite - Randolph CSPP	
152	1	Rhyolite - unidentified stemmed corner-notched CSPP	
152	2	Rhyolite - unidentified CSPP fragments	
152	1	Quartz - unidentified CSPP fragment	
152	1	Quartz - biface fragment	
152	1	Crystal quartz - biface fragment	
154	2	Crystal quartz - unifaces	
154	2	Quartz - unifaces	
155	4	Rhyolite - retouched flakes	
155	2	Crystal quartz - retouched flakes	
155	1	Basalt - retouched flake	
155	8	Rhyolite - utilized flakes	
155	3	Crystal quartz - utilized flakes	
156	2	Rhyolite - blades	
157	1	Rhyolite - spokeshave	
158	1	Rhyolite - graver	

Acc.	#	Description	Provenience
158	1	Crystal quartz - graver	Unit 13 -Plowzone
158	2	Quartz - gravers	
169	834gr	Fire cracked rock	
171	1	Quartz - pebble spokeshave	
171	1	Quartz - pebble graver	
173	6	Rhyolite - chunks	
173	12	Rhyolite - primary flakes	
173	146	Rhyolite - secondary flakes	
173	25	Rhyolite - tertiary flakes	
173	54	Rhyolite - other flakes	
173	3	Crystal quartz - chunks	
173	15	Crystal quartz - secondary flakes	
173	18	Crystal quartz - other flakes	
173	7	Quartz - chunks	
173	28	Quartz - secondary flakes	
173	35	Quartz - other flakes	
173	2	Jasper - chunks	
173	9	Jasper - secondary flakes	
173	5	Jasper - other flakes	
173	2	Basalt - secondary flakes	
173	5	Basalt - other flakes	
173	5	Chert - secondary flakes	
173	3	Chert - other flakes	
173	2	Argillite - other flakes	
173	1	Slate - other flake	
173	3	Unidentified lithic material - other flakes	
173	2	Quartz - pebble cores	
173	7	Quartz - primary sections	
179	1	Steatite sherd	
201	36	Ceramic sherds	
202	37	Residual sherds	
204	4	Hematite fragments	
204	1	Limonite fragment	
301	15	Bone fragments	
150	1	Rhyolite - Kirk CSPP	Unit 9 - Level 3
155	1	Rhyolite - utilized flake	
155	1	Rhyolite - blade-like flake	
158	1	Quartz - graver	
169	533gr	Fire cracked rock	
170	1	Quartz - pebble chopper	
173	9	Rhyolite - primary flakes	
173	48	Rhyolite - secondary flakes	
173	9	Rhyolite - tertiary flakes	
173	43	Rhyolite - other flakes	
173	2	Quartz - other flakes	
173	6	Crystal quartz - secondary flakes	
173	3	Crystal quartz - secondary flakes	
173	3	Argillite - other flakes	
173	2	Schist - other flakes	
173	1	Basalt - other flake	
173	1	Unidentified lithic material - other flake	
173	2	Quartz - pebble sections	
201	1	Ceramic sherd	
202	2	Residual sherds	

Acc.	#	Description	Provenience
150	1	Rhyolite - Kirk CSPP	Unit 12 - Level 2
153	1	Rhyolite - preform	
155	2	Rhyolite - retouched flakes	
155	1	Rhyolite - utilized flake	
155	1	Quartz - utilized flake	
169	500gr	Fire cracked rock	
173	1	Rhyolite - chunk	
173	11	Rhyolite - primary flakes	
173	60	Rhyolite - secondary flakes	
173	4	Rhyolite - tertiary flakes	
173	30	Rhyolite - other flakes	
173	4	Quartz - secondary flakes	
173	5	Quartz - other flakes	
173	3	Crystal quartz - secondary flakes	
173	2	Basalt - secondary flakes	
173	2	Basalt - other flakes	
173	1	Felsite - chunk	
173	3	Unidentified lithic material - chunks	
173	6	Unidentified lithic material - other flakes	
201	2	Ceramic sherds	
204	2	Hematite chunks	
204	3	Limonite chunks	
150	1	Rhyolite - Morrow Mountain II CSPP	Unit 13 - Level 2
150	1	Rhyolite - unidentified Archaic CSPP	
152	1	Rhyolite - biface fragment	
153	1	Rhyolite - preform	
155	1	Rhyolite - retouched flake	
155	2	Rhyolite - utilized flakes	
169	538gr	Fire cracked rock	
173	1	Rhyolite - chunk	
173	4	Rhyolite - primary flakes	
173	12	Rhyolite - other flakes	
173	34	Rhyolite - secondary flakes	
173	2	Rhyolite - tertiary flakes	
173	2	Crystal quartz - secondary flakes	
173	1	Quartz - secondary flake	
173	1	Basalt - other flake	
173	1	Unidentified lithic material - secondary flake	
173	1	Unidentified lithic material - other flake	
173	1	Unidentified lithic material - chunk	
201	1	Ceramic sherd	
202	1	Residual sherd	
169	5gr	Fire cracked rock	
173	1	Quartz - core	
173	2	Rhyolite - secondary flakes	
151	1	Rhyolite - Woodland dart point	Grader cut cleaning
155	2	Rhyolite - utilized flakes	
169	70gr	Fire cracked rock	
173	4	Rhyolite - chunks	
173	7	Rhyolite - primary flakes	
173	64	Rhyolite - secondary flakes	

Acc.	#	Description	Provenience
173	11	Rhyolite - tertiary flakes	Grader cut cleaning
173	36	Rhyolite - other flakes	
173	5	Quartz - secondary flakes	
173	4	Quartz - other flakes	
173	2	Crystal quartz - secondary flakes	
173	1	Basalt - secondary flake	
173	2	Basalt - other flakes	
201	3	Ceramic sherds	
202	3	Residual sherds	
150	1	Rhyolite - Morrow Mountain II CSPP fragment	Feature 10
151	1	Basalt - Woodland CSPP	
152	2	Rhyolite - biface fragments	
154	1	Crystal quartz - uniface	
155	2	Rhyolite - utilized flakes	
155	1	Basalt - utilized flake	
157	1	Rhyolite - spokeshave	
169	41gr	Fire cracked rock	
173	6	Rhyolite - primary flakes	
173	25	Rhyolite - secondary flakes	
173	2	Rhyolite - tertiary flakes	
173	15	Rhyolite - other flakes	
173	1	Quartz - core	
173	2	Quartz - secondary flakes	
173	2	Quartz - other flakes	
173	1	Crystal quartz - secondary flakes	
173	1	Jasper - primary flake	
174	1	Basalt - tertiary flake	
173	4	Basalt - other flakes	
201	2	Ceramic sherds	
202	3	Residual sherds	
204	1	Hematite fragment	
204	1	Limonite fragment	
173	3	Quartz - secondary flakes	Feature 11
173	1	Quartz - other flake	
173	2	Rhyolite - secondary flakes	
201	1	Ceramic sherd	
150	1	Rhyolite - Kirk CSPP	Feature 12
151	1	Rhyolite - Woodland triangular CSPP	
151	1	Unidentified lithic material - side-notched CSPP	
152	1	Rhyolite - biface	
152	1	Rhyolite - Biface fragment	
153	1	Rhyolite - preform fragment	
154	1	Rhyolite - uniface	
155	3	Rhyolite - retouched flakes	
155	5	Rhyolite - utilized flakes	
155	1	Quartz - utilized flakes	
157	2	Rhyolite - spokeshaves with graver tips	
158	5	Rhyolite - flake gravers	
161	1	Metavolcanic - mano	
162	1	Metavolcanic - metate	

Acc.	#	Description	Provenience
169	1072gr	Fire cracked rock	Feature 12
171	1	Rhyolite - bifacially flaked knife	
173	3	Rhyolite - chunks	
173	20	Rhyolite - primary flakes	
173	59	Rhyolite - other flakes	
173	88	Rhyolite - secondary flakes	
173	31	Rhyolite - tertiary flakes	
173	1	Quartz - core	
173	4	Quartz - other flakes	
173	3	Quartz - secondary flakes	
173	1	Crystal quartz - other flake	
173	2	Basalt - other flakes	
173	2	Basalt - secondary flakes	
174	1	Steatite fragment	
179	1	Steatite bowl fragment	
201	8	Ceramic sherds	
202	4	Residual sherds	
153	1	Rhyolite - preform	Feature 13
155	1	Rhyolite - utilized flake	
157	1	Basalt - spokeshave	
173	2	Rhyolite - primary flakes	
173	7	Rhyolite - other flakes	
173	19	Rhyolite - secondary flakes	
173	1	Crystal quartz - chunk	
173	1	Crystal quartz - secondary flake	
173	4	Crystal quartz - tertiary flakes	
173	4	Quartz - secondary flakes	
173	2	Quartz - tertiary flakes	
201	1	Ceramic sherd	
147	1	Petrified wood fragment	Unit 14 - Plowzone
147	3	Micaceous schist fragments	
150	3	Rhyolite - Morrow Mountain II CSPPs	
151	2	Quartz - Woodland triangular CSPPs	
152	4	Rhyolite - biface fragments	
152	5	Quartz - biface fragments	
154	2	Crystal quartz - unifaces	
155	1	Rhyolite - retouched flake	
155	7	Rhyolite - utilized flakes	
155	2	Jasper - utilized flakes	
155	1	Quartz - utilized flake	
156	2	Quartz - blades	
158	1	Quartz - graver	
159	3	Quartz hammerstones	
165	1	Unidentified lithic material - flaked axe	
169	2625gr	Fire cracked rock	
170	2	Rhyolite - chopper/pick	
170	1	Quartz - round scraper	
170	1	Rhyolite - triangular chunk (knife/scraper?)	
171	1	Rhyolite - bifacial scraper	
171	1	Rhyolite - flake scraper	

Acc.	#	Description	Provenience
171	2	Quartzite - abraders	Unit 14 - Plowzone
171	1	Crystal quartz - pebble blade	
173	3	Jasper - chunks	
173	1	Jasper - other flakes	
173	14	Jasper - secondary flakes	
173	8	Rhyolite - chunks	
173	18	Rhyolite - primary flakes	
173	76	Rhyolite - other flakes	
173	159	Rhyolite - secondary flakes	
173	27	Rhyolite - tertiary flakes	
173	11	Argillite - other flakes	
173	12	Unidentified lithic material - other flakes	
173	4	Felsite - other flakes	
173	2	Slate - other flakes	
173	1	Micaceous schist - other flake	
173	3	Quartzite - secondary flakes	
173	2	Crystal quartz - chunks	
173	8	Crystal quartz - other flakes	
173	9	Crystal quartz - secondsry flakes	
173	4	Quartz - cores	
173	10	Quartz - chunks	
173	15	Quartz - other flakes	
173	17	Quartz - secondary flakes	
173	4	Quartz - tertiary flakes	
173	4	Quartz cobble - primary flakes	
173	1	Quartz cobble - secondary flake	
173	3	Basalt - primary flakes	
173	4	Basalt - secondary flakes	
179	2	Steatite bowl fragments	
201	51	Ceramic sherds	
202	32	Residual sherds	
204	5	Hematite fragments	
204	4	Limonite fragments	
301	3	Bone fragments	
147	1	Felsite fragment	Feature 9
155	2	Rhyolite - utilized flakes	
155	1	Rhyolite - retouched flake	
159	6	Quartz - hammerstones	
160	1	Quartz - anvil	
163	1	Ceramic abrader	
169	5384gr	Fire cracked rock	
171	5	Rhyolite - knife/scrapers (backed blades)	
171	1	Felsite - knife/scraper (backed blade)	
173	1	Rhyolite - primary flake	
173	38	Rhyolite - secondary flake	
173	9	Rhyolite - tertiary flakes	
173	18	Rhyolite - other flakes	
173	2	Quartz - cores	
173	1	Quartz - chunk	
173	1	Quartz - pebble primary flake	
173	3	Quartz - secondary flakes	
173	1	Crystal quartz - other flake	
173	4	Crystal quartz - secondary flakes	
173	4	Unidentified lithic material - other flakes	
201	15	Ceramic sherds	

Acc.	#	Description	Provenience
036	1	Cut nail	Unit 15 - Plowzone
071	1	Brick fragment	
150	1	Rhyolite - Morrow Mountain II CSPP	
151	3	Rhyolite - Woodland triangular CSPPs	
151	1	Rhyolite - Randolph CSPP	
152	2	Rhyolite - CSPP fragments	
153	1	Rhyolite - Palmer preform	
153	1	Rhyolite - preform fragment	
153	1	Rhyolite - preform	
154	2	Crystal quartz - unifaces	
154	1	Quartz - uniface	
155	1	Crystal quartz - retouched flake	
155	9	Rhyolite - utilized flakes	
155	1	Chert - utilized flakes	
155	1	Rhyolite - retouched flake	
163	1	Quartz - pebble abrader	
169	575gr	Fire cracked rock	
173	18	Rhyolite - primary flakes	
173	32	Rhyolite - other flakes	
173	57	Rhyolite - secondary flakes	
173	12	Rhyolite - tertiary flakes	
173	3	Crystal quartz - chunks	
173	4	Crystal quartz - other flakes	
173	20	Crystal quartz - secondary flakes	
173	7	Quartz - chunks	
173	6	Quartz - other flakes	
173	8	Quartz - secondary flakes	
173	2	Jasper - chunks	
173	2	Jasper - secondary flakes	
173	2	Basalt - secondary flakes	
173	1	Argillite - other flake	
173	4	Argillite - secondary flakes	
173	5	Unidentified lithic material - other flakes	
201	24	Ceramic sherds	
202	11	Residual sherds	
027	1	Container glass fragment	Unit 16 - Plowzone
147	1	Petrified wood fragment	
152	2	Rhyolite - unidentified CSPP	
152	2	Rhyolite - bifaces	
152	1	Quartz - biface fragment	
154	2	Quartz - pebble unifaces	
155	2	Quartz - retouched flakes	
155	1	Crystal quartz - utilized flake	
155	5	Rhyolite - utilized flakes	
158	1	Quartz - graver	
169	497gr	Fire cracked rock	
173	7	Rhyolite - primary flakes	
173	25	Rhyolite - other flakes	
173	64	Rhyolite - secondary flake	
173	10	Rhyolite - tertiary flakes	
173	1	Crystal quartz - core	
173	1	Crystal quartz - chunk	

Acc.	#	Description	Provenience
173	2	Crystal quartz - other flake	Unit 16 -Plowzone
173	4	Quartz - chunks	
173	7	Quartz - other flakes	
173	5	Quartz - secondary flakes	
173	2	Jasper - secondary flakes	
173	1	Argillite - other flake	
173	1	Micaceous schist - other flake	
201	21	Ceramic sherds	
202	14	Residual sherds	
150	2	Rhyolite - Morrow Mountain II CSPPs	Unit 17 - Plowzone
151	1	Rhyolite - Woodland triangular CSPP	
151	1	Quartz - Woodland CSPP	
152	1	Rhyolite - biface	
153	1	Rhyolite - Morrow Mountain II preform	
153	1	Quartz - Savannah River preform	
154	1	Rhyolite - uniface end scraper	
154	1	Chert - uniface	
154	3	Crystal quartz - unifaces	
155	1	Crystal quartz - retouched flake	
155	1	Crystal quartz - utilized flake	
155	1	Quartz - utilized flake	
155	2	Quartz pebble - utilized flake	
155	3	Rhyolite - utilized flakes	
156	1	Quartz - blade	
156	1	Rhyolite - blade	
158	1	Crystal quartz - graver	
158	1	Rhyolite - graver	
169	1466gr	Fire cracked rock	
173	12	Rhyolite - primary flakes	
173	41	Rhyolite - other flakes	
173	93	Rhyolite - secondary flakes	
173	12	Rhyolite - tertiary flakes	
173	2	Crystal quartz - chunk	
173	2	Crystal quartz - other flakes	
173	3	Crystal quartz - secondary flakes	
173	10	Quartz - chunks	
173	9	Quartz - other flakes	
173	9	Quartz - secondary flakes	
173	6	Argillite - other flakes	
173	2	Basalt - other flakes	
173	1	Unidentified lithic material - other flake	
201	21	Ceramic sherds	
202	8	Residual sherds	
152	1	Rhyolite - biface	Fea. 9 - Level 2
169	2134gr	Fire cracked rock	
171	1	Quartz - pebble tool	
173	1	Rhyolite - other flake	
155	1	Rhyolite - utilized flake	Feature 14
159	1	Quartz - hammerstone	
169	2879gr	Fire cracked rock	

Acc.	#	Description	Provenience
170	1	Rhyolite - chopper	Feature 14
171	1	Rhyolite - knife	
173	6	Rhyolite - primary flakes	
173	5	Rhyolite - other flakes	
173	7	Rhyolite - secondary flakes	
173	2	Basalt - other flakes	
169	24gr	Fire cracked rock	Unit 6 - cleaning
153	1	Rhyolite - Morrow Mountain II preform	Unit 11 - cleaning
155	1	Rhyolite - utilized flake	
169	20gr	Fire cracked rock	
173	1	Rhyolite - chunk	
173	1	Rhyolite - other flake	
173	4	Rhyolite - secondary flakes	
173	1	Quartz - other flake	
173	1	Quartz - secondary flake	
173	1	Crystal quartz - secondary flake	
173	1	Argillite - other flake	
173	1	Felsite - chunk	
202	1	Residual sherds	

SCOPE OF WORK
FOR
DATA RECOVERY AT
ARCHAEOLOGICAL SITE 31Dh234
FALLS LAKE
DURHAM COUNTY, NORTH CAROLINA

1. Introduction. Archeological Site 31Dh234 is located in the northern reaches of the Falls Lake Project, Durham County, North Carolina (shown on attachment 1). A short description of the site and a general description of the data recovery work anticipated follows:

Site 31Dh234 is located in an area of a proposed borrow area which will be used for the construction of a wildlife subimpoundment on the Flat River. While there will be no immediate impacts, either from the construction of the wildlife subimpoundment or from the pro, osed borrow area, the site can not be preserved in place after construction due to increased visitation and the severe erosion caused by the modification of the topography in the immediate area of the site. The site will be fenced during construction to allow both construction and data recovery to proceed concurrently. A data recovery program is required which will consist of plowing and controlled surface collection followed by excavation in areas where the controlled surface collection reveals subsurface features. The Wilmington District and the N.C. State historic Preservation Officer have agreed the site meets the criteria of eligibility.

The data recovery for this site is being performed under the authority of the National Historic Preservation Act of 1966, as amended (PL 89-665), the Reservoir Salvage Act (PL 86-523), and the Preservation of Historic and Archeological Data Act of 1974 (PL 93-291); and in accordance with the Memorandum of Agreement ratified in 1978 between the Advisory Council on Historic Preservation, the North Carolina State Historic Preservation Officer, and the Wilmington District.

2. Archaeological Site 31Dh234 was first recorded by Commonwealth Associates as site CAI-15 during the survey reported in Commonwealth Associates, Inc. 1978. At that time the site was identified as Early and Late Woodland with a possible Archaic component, based on the recovery of Uwharrie and Yadkin points, two net-impressed, sand-tempered sherd, and two undefinable, possibly Archaic, dart points. The site, which is located on a high knoll overlooking the Flat River, was re-visited by Archaeological Research Consultants (ARC) in 1983 (see Hargrove et al n.d.). The investigations undertaken by ARC included surface collections, shovel tests, and three 1 meter excavation units. The dominant component of the site appears to be Woodland with a separate, possibly stratified, Archaic component. A further description of the site can be found in the National Register of Historic Places Documentation found at attachment 1.

3. Items to be Furnished by the Contracting Officer (After award of the Contract).

a. The report entitled: Archaeological Investigations of the National Register Bennehan-Cameron Plantation Historic District and the Areas of Proposed Recreational Development and Proposed Wildlife Subimpoundments at Falls Lake, Wake and Durham Counties, North Carolina. (4 Volumes), by Thomas H. Hargrove, Carol Spears, G. Ishmael Williams, and Scott Madry.

b. The report entitled: Cultural Resources Survey and Evaluation at Falls Lake Wake, Durham, and Granville Counties, North Carolina, by Commonwealth Associates, Inc.

4. Consultation. Prior to initiating field work, the Contractor will become thoroughly familiar with the available documentation and will initiate a process of comprehensive consultation with the staff archaeologists and historians at the North Carolina Division of Archives and History and with selected authors of the reports listed in paragraph 5, Literature Review, below. The authors consulted will include Stephen R. Claggett, Thomas H. Hargrove, H. Trawick Ward, and Joffre L. Coe. Insofar as practical, the Contractor should consider some consultation during the preparation of the research proposal.

5. Literature Review. A large body of literature is currently available addressing various aspects of history and prehistory in the region and the vicinity of the Falls Lake project. The listing below is minimal and is intended to serve as an introduction to fuller bibliographies. The Contractor and his field personnel shall become thoroughly familiar with the available literature in order to make informed field judgments on the nature of encountered archeological features. A review of the literature cited below is not sufficient to meet this requirement. Prior to the beginning of fieldwork, the Contractor will have completed thorough document research and interviews with the staff of the North Carolina Division of Archives and History and the Research Laboratories of Anthropology located at the University of North Carolina at Chapel Hill. In addition, the Contractor shall view the artifacts previously recovered from 31Dh234 which are being curated at the N.C. Division of Archives and History. The literature listed below is available for review at the following locations by giving at least two days' notice:

U. S. Army Engineer District, Wilmington
Post Office Box 1890
23 North Front Street
Room 400 B ATTN: W. Coleman Long II
A/C (919) 343-4751
Wilmington, North Carolina 28402-1890

North Carolina Division of Archives and History
(Office of State Archaeology) ATTN: Ms. Dolores Hall
109 East Jones Street
Raleigh, North Carolina 27611
A/C (919) 733-7342

Claggett, Stephen R.
1981 Archaic Stage Adaptions in the Piedmont. An Evaluation of Four Models Using Data From North Central North Carolina. MA Thesis Wake Forest University.

Claggett, Stephen R. and John S. Cable
1982 The Haw River Sites, Archeological Investigations at Two Stratified Sites in the North Carolina Piedmont. Report submitted to the U.S. Army Engineer District, Wilmington, Wilmington, North Carolina.

Coe, Joffre L.
1964 The Formative Cultures of the Carolina Piedmont. Transactions of the American Philosophical Society, NS, Vol. 54, No. 5.

Commonwealth Associates, Inc.
1978 Cultural Resources Survey and Evaluation at Falls Lake, Wake, Durham, and Granville Counties, N.C. Report submitted to Interagency Archeological Services, Atlanta.

GAI Consultants, Inc.
1981 Phase II Archeological Investigations of Ten Specified Locales in the Falls Lake Reservoir Area, North Carolina. Report submitted to the U. S. Army Engineer District, Wilmington, Wilmington, NC.

Hargrove, Thomas H., Carol Spears, G. Ishmael Williams, and Scott Madry
n.d. Archaeological Investigation of the National Register Bennehan-Cameron Plantation Historic District and the Areas of Recreational Development and Proposed Wildlife Subimpoundments at Falls Lake, Wake and Durham Counties, North Carolina. (4 Volumes) Draft Report submitted to the U. S. Army Engineer District, Wilmington, Wilmington, NC.

Keel, Bennie C.
1970 A Reconnaissance and Proposal for Archeological Salvage in Falls Reservoir, N.C. Report submitted to Interagency Archeological Services, Atlanta.

Snavely, Alan
1977 Modeling Prehistoric Culture Change in Piedmont North Carolina. MS on file, Department of Anthropology, The Pennsylvania State University.

Ward, Trawick H.
n.d. An Archeological Survey of the Falls Lake Reservoir, N.C. Manuscript submitted to Interagency Archeological Services, Atlanta.

6. Services to be Provided by the Contractor. Investigations have been undertaken at site 31Dh234 by both Archaeological Research Consultants Inc. (Hargrove et al n.d.) and by Commonwealth Assocaiates Inc. (Commonwealth Associates, Inc. 1978). Both of these reports demonstrate the research potential of the site. The Contractor shall design a data recovery program for the site that incorporates the research questions posed in the above reports (appropriate excerpts attached as attachments 2a and 2b), and details of the proposed field methodology and proposed laboratory analysis proposed. This

plan will integrate both the field work and analysis with ›e research design. This data must be presented in the initial proposal for the proposal to be considered in the competitive range. In addition to the above, the Contractor's proposal must meet the standards for data recovery research designs presented in 36 CFR part 66 and the intent of the Federal legislation cited in paragraph 1 of the Scope of Work.

7. Items to be Provided to the Contracting Officer by the Contractor.

a. Weekly Progress Reports. The Contractor will, during the entire period the contract is in force, be required to submit verbal weekly progress reports by the close of business on Monday of each week. The progress report will normally detail the field and/or laboratory activities of key personnel and actions taken to accomplish each designated task during the previous week. Methodological problems, results of test excavations, results of analysis, and requests for conferences will also be discussed.

b. Monthly Progress Reports. Monthly progress reports shall be submitted to the COR by the 7th day of each month during the entire period the contract is in force. All or any part of any partial payment requested may be withheld if monthly progress reports are not submitted on time or in a satisfactory manner. These reports shall contain an accurate, up-to-date account of all laboratory and field work procedures and results, and will also specify the percent of completion of each of the basic tasks. Standard forms for submission of monthly reports will be furnished by the Corps of Engineers (see attachment 3). Monthly progress reports will also serve as interim evaluation reports. Each monthly report will include an evaluation of the archeological investigation.

c. The Draft and Final Reports. The draft and final reports of investigations shall reflect and report the analysis required by 36 CFR Part 66 and this Scope of Work. They shall meet current professional standards, be suitable for publication, and be prepared in a format reflecting contemporary organizational and illustrative standards of the current professional archeological journals. The general style guide for this report shall be the same as that found in the 1983 "Editorial Policy and Style Guide for American Antiquity" American Antiquity 48:429-440. The final report will be prepared on 8-1/2 by 11-inch paper and typed, single-spaced. All pages must be numbered. Final reports will be bound in perfect binding and, in addition, draft and final reports will either contain the following or meet the following criteria:

(1) Maps showing the actual areas investigated and the method of investigations performed will be provided.

(2) High quality original black and white photographs (or screened offset printed reproductions) or measured drawings, as appropriate, shall be provided with documentation and show details of features, profiles, or other evidence of human occupation. Upon completion of the report, all photo negatives will be forwarded to the COR, Corps of Engineers, Wilmington District, for permanent record. In addition, an overall site plan, showing the relationships of any features to one another, will be included in the

reports. When drawings are used, they shall conform to the following criteria:

(a) Mechanical lettering shall be used in accordance with good drafting practice. In no cases shall lettering height be less than 1/8 inch.

(b) Pencil shading on finished drawings will not be accepted. Shading will be accomplished with hatching or pre-printed "stick-on" screens. Lettering shall not be obscured with hatching or screening. Hatching on the reverse side of the drawing is preferred. The Contractor will furnish original reproducible charts, graphs, and drawings of features on 4 millimeter Polyester Matte (both sides) Drafting Film or equivalent for all charts, graphs, and drawings of features prepared under this contract.

(c) Finished drawings shall be prepared to produce clear and sharp images on 35-millimeter microfilm in order to avoid filled loops or leaching of lines and/or characters on blowbacks.

(3) If a report has been authored by someone other than the contract PI, the cover and title page of the publishable report must bear the inscription, Prepared Under the Supervision of (Name), Principal Investigator and the PI must at least prepare a foreword describing the overall research context of the report, the significance of the work, and other background circumstances relating to the manner in which the work was undertaken. The PI is required to sign the original copy of the report.

(4) The title page of the report must bear an appropriate inscription indicating the source of funds used to conduct the reported work including the contract number and the date of the report.

(5) The cover of the report must bear the Inscription: "Prepared by (Name of Firm) for the Wilmington District Corps of Engineers."

(6) If the Contractor expects to publish all or part of the final report, he must provide the Corps of Engineers with a letter specifying the expected date, place, and name of publication. This letter <u>must</u> be submitted with the final report.

(7) This Scope of Work and the research design submitted in response to it by the Contractor will be included as an appendix to the draft and final reports.

(8) An abstract suitable for publication in an abstract journal must be prepared. This should consist of a brief, quotable summary useful for informing the technically oriented professional public of what the author considers to be the contributions of the investigation. This <u>must</u> be submitted with the Draft report.

(9) A brief, nontechnical summary of the results of the data recovery and their significance to the study of human prehistory and history will be prepared and submitted separately from the draft and final reports. The narrative should be oriented toward the nonprofessional public. The purpose

of this document is to inform the interested public of the results of research conducted by anthropologists using public funds. The nontechnical report should give a complete synopsis of the findings and should be in a style and length adaptable to a project level public information bulletin. Photographs and/or drawings of significant artifacts and features shall be included.

(10) The draft and final report will include a bibliography of all references and documentation consulted under this contract.

(11) The draft report will be submitted in 10 copies which need not be bound but must be stapled. The final report will be submitted in 25 copies, plus the unbound originals.

(12) The final report may be submitted by the Corps of Engineers to the North Carolina Division of Archives and History for publication in the North Carolina Archaeology Series.

(13) The Contractor shall complete a DD Form 1473 (Government furnished) and submit three copies with the final report.

8. Personnel/Agency Standards. Agencies, institutions, corporations, associations, or individuals will be considered qualified when they meet the minimum criteria given below. The contract proposal must include vitae for the PI and main supervisory personnel in support of their academic and experiential qualifications for the research. In the event that support personnel have not been identified at the time of contract proposal, vitae on these positions may be omitted until such time as they are identified with the provision that those to be selected meet the minimum professional standards stated below and that their work under this contract is subject to approval by the COR.

a. Archeologist. The minimum professional qualifications in archeology are:

(1) A graduate degree in archeology, anthropology, or closely related field or equivalent training accepted for accreditation purposes by the Society of Professional Archaeologists;

(2) Demonstrated ability to carry research to completion, usually evidenced by timely completion of theses, research reports, or similar documents; and

(3) At least 16 months of professional experience and/or specialized training in the archeological field, laboratory, or library research, administration, or management including at least 4 month's experience in archeological field research and at least 1 year of experience and/or specialized training in the kind of activity the individual proposes to practice under this contract. Persons supervising field archeology should have at least 1 year or its equivalent in field experience and/or specialized field training, including at least 6 months in a supervisory role. Persons engaged to do archival or documentary research should have had at least 1 year of experience and/or specialized training in such work. Archaeologists engaged

in regional or agency planning or compliance with historic preservation procedures should have had at least 1 year of experience in work directly pertinent to planning, compliance actions, etc., and/or specialized historic preservation or cultural resource management training. A practitioner of prehistoric archeology should have had at least 1 year of experience or specialized training in research concerning archeological research in the region where the project will be undertaken.

b. Archeological Project Directors or Principal Investigators (PI). PI's and Project Directors in charge of work under this contract, in addition to meeting the appropriate standards for archaeologists, must have the doctorate or an equivalent level of professional experience as evidenced by a publication record that demonstrates experience in field project formulation, execution, and technical monograph reporting. Suitable professional references may also be made available to obtain estimates regarding the adequacy of prior work. If prior projects were of a sort not ordinarily resulting in a publishable report, a narrative should be included detailing the proposed project director's previous experience in sufficient detail to allow for a determination of the adequacy of this earlier work.

c. Consultants. Personnel hired or subcontracted for their special knowledge and expertise (other than those defined above) must carry academic and experiential qualifications in their own fields of competence. Such qualifications are to be documented by means of vitae attachments submitted with the proposal or at a later time if the consultant has not been retained at the time of proposal. All individuals hired as consultants must be approved by the COR in writing prior to performing any work under this contract.

d. Institutional or Corporate Qualifications. Any institution, organization, etc., obtaining this contract, and sponsoring the PI or Project Director and meeting the previously given requirements must also provide or demonstrate access to the following capabilities:

(1) Adequate field and laboratory equipment necessary to conduct whatever operations are defined in this Scope of Work.

(2) Adequate facilities necessary for proper treatment, analysis, and storage of specimens and records (not necessarily long-term curation) likely to be obtained from a given project. This does not necessarily include such specialized facilities as pollen, geochemical, or radiological laboratories, but it does include facilities sufficient to properly preserve or stabilize specimens for any subsequent specialized analysis.

9. Disposition of Data. All artifacts recovered under the terms of this contract will be recovered from Federally-owned lands. Artifacts recovered from Federally owned land under the terms of a Federally sponsored contract are the property of the Federal Government and are subject to the curation provisions of the Archeological Resources Protection Act of 1979.

10. Curation. All artifacts recovered from work performed under this contract will be washed, stabilized (as necessary), labeled, and bagged by

provenience. At a minimum, information to be supplied w h the labeled artifacts will include site number, provenience unit number, county name, state, investigator or company name, name of the project, and the date of collection. The Contractor will provide for permanent curation of all materials recovered under this contract which are not to be maintained by the North Carolina State Historic Preservation Officer. The curatorial facility must be identified in the submitted proposal, and must meet or exceed curation and storage guidelines furnished by the North Carolina State Historic Preservation Officer (NC SHPO). If the COR designates a permanent repository other than the NC SHPO, the institutional curation standards for labeling and other required information take precedence over those listed above.

11. Controversies. In the event of controversy or court challenge, Principal Investigator(s) shall be placed under separate contract to testify on behalf of the Government in support of findings presented in the report.

12. Release of Information. Neither the Contractor nor his representatives shall release any sketch, photograph, report, or other material of any nature obtained or prepared under the contract without specific written approval of the Contracting Officer prior to the time of final acceptance of the report(s) by the Government.

13. Period of Services. The Contractor will be required to commence work under this contract within 10 calendar days after receipt of a signed contract. The contract period is for 200 days from the contract award date (CAD). The contractor shall adhere to the following deadlines:

Completion of all fieldwork	45 days from CAD
Completion of analysis	90 days from CAD
Submittal of Draft Report	140 days from CAD
Submittal of Final Report * and all remaining work	200 days from CAD

* A reasonable delay of up to 45 days can be expected for District review and approval of the draft and final reports prior to acceptance by the Government.

14. Method of Payment. Partial payments to the Contractor for services performed under this contract will be made at the end of each month, based on an approved estimate of value of work accomplished during the month. The dollar value of each stage of work will be indicated on a progress schedule. The amounts of partial payments due the Contractor shall be determined by the Contracting Officer's Representative on the basis of approved monthly progress reports expressed as a percentage of work accomplished. Ten percent (10%) will be deducted from each partial payment estimate, such deductions to be retained until all work has been completed and accepted, at which time all remaining amount due, together with retainage, will be paid to the Contractor.

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name N/A
other names/site number 31Dh234

2. Location

street & number U.S. Army Corps of Engineers, Falls Lake Project ☐ not for publication
city, town Butner ☒ vicinity
state North Carolina code NC county Durham code 063 zip code 27509

3. Classification

Ownership of Property
- ☐ private
- ☐ public-local
- ☐ public-State
- ☒ public-Federal

Category of Property
- ☐ building(s)
- ☐ district
- ☒ site
- ☐ structure
- ☐ object

Number of Resources within Property

Contributing	Noncontributing	
0	0	buildings
1	0	sites
0	0	structures
0	0	objects
1	0	Total

Name of related multiple property listing: N/A

Number of contributing resources previously listed in the National Register N/A

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☒ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

- ☐ entered in the National Register.
  ☐ See continuation sheet.
- ☐ determined eligible for the National Register. ☐ See continuation sheet.
- ☐ determined not eligible for the National Register.
- ☐ removed from the National Register.
- ☐ other, (explain:)

Signature of the Keeper Date of Action

6. Function or Use

Historic Functions (enter categories from i ..ructions)	Current Functions (r categories from instructions)
Camp	Public Works ,roject

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)	
N/A	foundation	N/A
	walls	N/A
		N/A
	roof	N/A
	other	N/A

Describe present and historic physical appearance.

This site was initially described by Commonwealth Associates, in their 1978 report as:

"This site is defined by a surface scatter of lithic and ceramic artifacts on a high knoll located 150m due east of the Flat River and elevated some 10-12m above the channel. The area of the scatter measured 100m (N/S) by 50m (E/W) and at the time of the survey was covered with a mixed hardwood forest. The archeological deposits in the upper soil layer have been extensively disturbed by clearing and erosion. The Woodland temporal designations are based on the recovery of 1 Uwharrie and 1 'eared' Yadkin projectile points (both andesite), and 2 net-impressed sand-tempered sherds. A probable Archaic component is indicated by the presence of 2 typologically unidentifiable dart points.

"Five projectiles were recovered, all of andesite. In addition to the Uwharrie (Plate 1) and 'eared' Yadkin points referred to above, 1 arrow point midsection was recovered. One crude lozenge shaped dart point and 1 side-notched dart point in an advanced stage of resharpening were also recovered. Other lithic tool forms recovered include 4 bifacial knives (1 basalt, 3 andesite), 1 preform (andesite), 1 whole plano-convex core (basalt), and 5 utilized flakes (andesite). Debitage includes 13 primary flakes (12 andesite, 1 quartz), 24 secondary flakes (23 andesite, 1 quartz), and 19 tertiary flakes (12 andesite, 7 quartz). Some possible daub or fired clay fragments were observed on the surface but were not collected. Two net-impressed sherds, both sand-tempered, were recovered. Both exhibit a single row of evenly spaced finger pinches on the exterior surface; one of the two sherds is a rim fragment and the application is 27mm below the lip." (Commonwealth Associates Inc., 1978)

This site was revisited in 1982 by Archaeological Research Consultants. Their description of the site follows:

"The site is on a high knoll overlooking the Flat River floodplain. At the time of Commonwealth's visit in 1977, the site was in a mixed hardwood forest, which had been cleared and replaced by a pasture and

[XX] See continuation sheet

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number 7 Page 2

farm pond by the time of ARC's visit. The site covers the width of the knoll (about 100 meters from north to south) and extends eastward out of the Project area toward the crest of the ridge between the Flat River and Knapp of Reeds Creek.

"ARC's investigations at the site included surface collections, shovel tests and three 1 x 1 meter square test pits.

"Surface collections were made from the road bisecting the site, from the surface of a recently constructed earthen dam, and from the east side of the new farm pond. The road surface contained five grit-tempered Woodland sherds and 171 lithic artifacts, including a Guilford projectile point, an endscraper, 159 secondary flakes, and 9 primary flakes, mostly rhyolite. One chopper and one thick biface were collected from the dam site and east of the pond respectively.

"The surveyors excavated three shovel tests on the site. Shovel test one, north of the road contained three secondary flakes and two sand-tempered sherds. Shovel test two, south of and adjacent to the road, contained five secondary flakes. Shovel test three on the highest point of the knoll south of the road contained 45 lithic artifacts and five sherds, collected from the two upper soil levels, 15 centimeters deep. Level One was a dark grey, silty loam, 15 centimenters deep. Level Two was tannish brown, silty clay loam to 35 centimeters, overlying orange clay subsoil. The Woodland sherds came from Level One, and Archaic Kirk and Guilford Points came from Level Two. The artifacts from the shovel tests included a drill/perforator, 32 secondary flakes, three primary flakes, and six unmodified angular fragments of lithic raw material.

"The unusually high density of artifacts in the third shovel test, combined with the possibility of stratified, vertically separated Archaic and Woodland deposits, suggested the need for additional investigations to evaluate the site. ARC excavated three test pits, each one meter square, at widely spaced locations across the site. All soil was screened through 1/4 inch mesh.

"<u>Test Unit One</u>: This unit was opened near shovel test three on the highest elevation of the knoll. The soil profile revealed a 10 centimeter plowzone of dark brown, clayey loam. Plowscars were visible at the bottom of this level. The 10 centimeter thick level of tan, clayey silt below the plowzone was the major cultural level. This level graded into reddish tan, gravelly clay around 20 to 25 centimeters below the surface. The plowzone contained two Woodland triangular points (re-used as drills or perforators) and 22 sherds. Level Three contained a number of lithic artifacts but only a single sherd. The bottom of the pit was scraped to a depth of 25 centimeters, but no subsurface features were apparent.

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National Park Service

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	Depth	Lithics	Ceramics
Level 1	0-8 cm	134	22
Level 2	8-20 cm	348	17
Level 3	20-25 cm	51	1

"Test Unit Two: This square was excavated 15 meters north of Test Unit One. The soil profile in Unit Two resembled that in Unit One. The plowzone contained a mixture of Archaic and Woodland artifacts (one Guilford point, seven Woodland points, 28 sherds). Beneath this level artifacts were found lying flat, presumably in situ, so the excavators mapped the artifacts (flakes, bifaces and sherds) in place and recorded their depths. As in Unit One, the bottom of the unit was scraped to reveal subsoil, but no subsurface features were apparent.

	Depth	Lithics	Ceramics
Level 1	0-12 cm	248	28
Level 2	12-21 cm	480	31
Level 3	21-33 cm	28	0

"Test Unit Three: This unit was placed on the northern edge of the site on the top of a rise north of the farm road. The density of artifacts was much lower in this unit, possibly a result of the northern exposure of this section. During the test program, the excavators noticed that a prevailing north wind was felt only in this section of the site. The soil levels in this unit resembled the soils in the previous units, but Level Two, the presumed cultural level, was only five centimeters thick in Unit Three.

	Depth	Lithics	Ceramics
Level 1	0-10 cm	5	0
Level 2	10-15 cm	15	2
Level 3	15-26 cm	2	0"

(Hargrove et al. n.d.)

8. Statement of Significance

C-13

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☒ statewide ☐ locally

Applicable National Register Criteria ☒ A ☐ B ☐ C ☒ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Archeology	Prehistory	N/A

Cultural Affiliation

Archaic, Early Woodland, Middle Woodland

Significant Person

N/A

Architect/Builder

N/A

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The upper Neuse River Basin, a portion of which is now inundated by the Falls Lake Project, has been the subject of several large scale prehistoric archeological surveys. These surveys have resulted in the discovery of over 800 archeological sites, representing over 12,000 years of prehistory. Several of these sites have been further investigated and determined to be eligible to the National Register of Historic Places. The Rolling View Archeological District, located approximately 10 miles to the southeast of 31Dh234, appears to be a focal point of Archaic subsistence activities of the Falls Lake area and an area where lithic technologies can be studied. While the 31Dh6 complex located approximately 2 miles northwest of the site is a large Late Woodland/protohistoric village site, which was visited by John Lawson in 1701, is one of the more significant archeological manifestations in the project area which may shed light on the Late Woodland and the protohistoric periods. The majority of the sites discovered, however, are very deflated, and severely eroded lithic scatters of the Archaic and Woodland time periods (when periods are assignable), which provide little more than locational information. Within these contexts, site 31Dh234 takes on more significance since it represents a well preserved example of the sites representative of the Archaic/Woodland interface.

Site 31Dh234 is a prehistoric archeological site with both Woodland and Archaic components. This site contains intact, upland cultural deposits, which are extremely rare, and it appears to have some vertical, possibly stratified, separation of Woodland and Archaic components of the site, since Early and Middle Archaic points were found under the Woodland level in Shovel Test 3 and Test Unit 1. The site is eligible for the National Register of Historic Places under criterion A, since the data contained in this site can provide information on both the Woodland and Archaic prehistoric time periods and possibly may contain information on the transition period between these cultural periods. The site is also eligible under criterion D, since the site has yielded and may yield further information on the prehistory of the Neuse River Basin in piedmont North Carolina due to the demonstrated presence of a well-preserved 10-12 centimeter cultural level beneath the plowzone. This degree of preservation, combined with the high density of remains, gives this site considerable importance, given the long history of agricultural damage and the severe erosion found in most areas of the upper Neuse Basin and the Piedmont of North Carolina in general.

☐ See continuation sheet

9. Major Bibliographical Refere 's

Commonwealth Associates, Inc.
1978 Cultural Resources Survey and Evaluation at Falls Lake, Wake, Durham, and Granville Counties, N.C. Report submitted to Interagency Archeological Services, Atlanta.

Hargrove, Thomas H., Carol Spears, G. Ishmael Williams, and Scott Madry
n.d. Archaeological Investigation of the National Register Bennehan-Cameron Plantation Historic District and the Areas of Recreational Development and Proposed Wildlife Subimpoundments at Falls Lake, Wake and Durham Counties, North Carolina. (4 Volumes) Draft Report submitted to the U. S. Army Engineer District, Wilmington, Wilmington, NC.

☐ See continuation sheet

Previous documentation on file (NPS):
☐ preliminary determination of individual listing (36 CFR 67) has been requested
☐ previously listed in the National Register
☐ previously determined eligible by the National Register
☐ designated a National Historic Landmark
☐ recorded by Historic American Buildings Survey # ______
☐ recorded by Historic American Engineering Record # ______

Primary location of additional data:
☒ State historic preservation office
☐ Other State agency
☒ Federal agency
☐ Local government
☐ University
☐ Other
Specify repository: ______

10. Geographical Data

Acreage of property 3 Acres UTM point in the middle of the site

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			

☐ See continuation sheet

Verbal Boundary Description

Site 31Dh234 is bounded on the north by an existing farm road, which has destroyed the northern edge of the site, and on the east by an existing farm pond, which has destroyed the eastern portion of the site. Cultural materials extend to these two recent features. The boundaries on the south and west coincide with the forest edge, which is also the edge of the relatively level area upon which the site is located.

☐ See continuation sheet

Boundary Justification

The boundaries for this site are justified based on the shovel tests placed in the area, topographic situation of the western and southern edges and the destruction of the eastern and northern edges of the site by recent intrusions.

☐ See continuation sheet

11. Form Prepared By

name/title Richard H. Lewis, Archeologist
organization U.S. Army Corps of Engineers, Wilmington date August 11, 1987
street & number P.O. Box 1890 telephone (919) 343-4755
city or town Wilmington state North Carolina zip code 28402-1890

Excerpt from:

Commonwealth Associates, Inc.
1978 Cultural Resources Survey and Evaluation at Falls Lake, Wake, Durham, and Granville Counties, N.C. Report submitted to Interagency Archeological Services, Atlanta.

"This site is defined by a surface scatter of lithic and ceramic artifacts on a high knoll located 150m due east of the Flat River and elevated some 10-12m above the channel. The area of the scatter measured 100m (N/S) by 50m (E/W) and at the time of the survey was covered with a mixed hardwood forest. The archeological deposits in the upper soil layer have been extensively disturbed by clearing and erosion. The Woodland temporal designations are based on the recovery of 1 Uwharrie and 1 'eared' Yadkin projectile points (both andesite), and 2 net-impressed sand-tempered sherds. A probable Archaic component is indicated by the presence of 2 typologically unidentifiable dart points.

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Attachment 2a

C-16

Excerpt from:

Hargrove, Thomas H., Carol Spears, G. Ishmael Williams, and Scott Madry
n.d. Archaeological Investigation of the National Register Bennehan-Cameron Plantation Historic District and the Areas of Recreational Development and Proposed Wildlife Subimpoundments at Falls Lake, Wake and Durham Counties, North Carolina. (4 Volumes) Draft Report submitted to the U. S. Army Engineer District, Wilmington, Wilmington, NC.

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Attachment 2b

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	Depth	Lithics	Ceramics
Level 1	0-8 cm	134	22
Level 2	8-20 cm	348	17
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"Test Unit Two: This square was excavated 15 meters north of Test Unit One. The soil profile in Unit Two resembled that in Unit One. The plowzone contained a mixture of Archaic and Woodland artifacts (one Guilford point, seven Woodland points, 28 sherds). Beneath this level artifacts were found lying flat, presumably in situ, so the excavators mapped the artifacts (flakes, bifaces and sherds) in place and recorded their depths. As in Unit One, the bottom of the unit was scraped to reveal subsoil, but no subsurface features were apparent.

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	Depth	Lithics	Ceramics
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(Hargrove et al. n.d.)

APPENDIX C

Data Recovery
Archaeological Site 31Dh234,
Falls Lake, Durham County, North Carolina

TECHNICAL PROPOSAL

Solicitation No. DACW54-87-R-0088

Submitted To

U. S. ARMY CORPS OF ENGINEERS
Wilmington District

30 Oct 87

Submitted By

CAROLINA ARCHAEOLOGICAL SERVICES
537 Harden Street
Columbia SC 29205

A Woman Owned Small Business Enterprise
An Equal Opportunity Employer

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CAROLINA
ARCHAEOLOGICAL
SERVICES

ARCHAEOLOGICAL ASSESSMENTS | HISTORICAL RESEARCH | CONSULTATION SERVICES | REPORTING

PROJECT: Data Recovery at Archaeological Site 31Dh234, Falls Lake, Durham County, North Carolina

SPONSOR: U. S. Army Corps of Engineers Wilmington District

DATE: 30 Oct 87

1.0 OVERVIEW

1.1 Project Background and Scope of Work

In accordance with a Memorandum of Agreement executed among the Wilmington District, U. S. Army Corps of Engineers, the Advisory Council on Historic Preservation, and the State of North Carolina (State Historic Preservation Office), archaeological data recovery will be carried out to mitigate the adverse effects of erosion and potential vandalism at archaeological site 31Dh234, which is located within a subimpoundment borrow area of the Falls Lake Project in Durham County (Fig. 1). The eligibility of this prehistoric site for the National Register of Historic Places has been concurred upon by the District and the NCSHPO. Archaeological data recovery will be conducted under the authority of the National Historic Preservation Act, as amended (P.L. 89-665, P.L. 96-515), the Archeological and Historic Preservation Act (P.L. 93-291), and the Reservoir Salvage Act (P.L. 86-523).

The research potential of 31Dh234 was demonstrated as a result of survey and testing carried out by Commonwealth Associates, Inc. (CAI) in 1978 (Claggett et al. 1978) and by Archaeological Research Consultants (ARC) in 1983 (Hargrove et al. n.d.). Although previously disturbed by forest clearing and cultivation, the site appears to contain stratified deposits, primarily consisting of Middle to Late Woodland occupation overlying Early to Middle Archaic occupation. No organic materials suitable for paleoenvironmental reconstruction or radiocarbon dating were recovered. The site refuse is largely composed of aboriginal lithic tools and debitage, as well as ceramic sherds. Data recovery will consist of discing and controlled surface collection, followed by small block excavation in areas where subsurface features are revealed.

2.0 RESEARCH DESIGN

2.1 Overview

The archaeological value of 31Dh234 lies in its relevance to anthropological questions concerning (a) the nature and character of aboriginal subsistence strategies during the Early to Middle Archaic and Woodland

537 HARDEN STREET | COLUMBIA, SOUTH CAROLINA 29205 | 803/254-3996

periods, and (b) diachronic change in patterns of subsistence/settlement, procurement, and technology at a single site which was reoccupied over a period from ca. 8500 B.C. - A.D. 1000. Based on survey and excavation data collected from the Carolina piedmont, the degree of site stratification and integrity indicated at 31Dh234 is unusual for upland landforms of this region. In addition, the site is located in a field where cultivation appears to have been relatively shallow. Thus, cultural deposits and material assemblages of research value are expected to be accessible and relatively well preserved.

2.2 Approach and Objectives

Having recorded and tested sites within the Falls Lake subimpoundments which are nearly identical to 31Dh234 in physiographic location, size, stratigraphic nature, and content, Carolina Archaeological Services (CAS) is in a unique position to offer the Corps a streamlined and practical strategy for data recovery at 31Dh234. The research design builds on, but does not duplicate, the data and preliminary hypotheses generated by previous investigation of sites at Rolling View Historic District and Haw River. It also incorporates methods and equipment which will insure the successful, timely, and cost-effective achievement of project goals and objectives.

Systematic investigation of 31Dh234 will be guided by its ability to complement and augment scientific knowledge concerning the history of human adaptation to piedmont environments during the Holocene (geologically recent) period. Questions about changes in aboriginal subsistence patterns, procurement strategies, and technology are behavioral elements of the site's culture history, and will therefore be examined from an anthropological perspective. Since investigation of these questions requires a certain knowledge of past environments at the site, the perspective of cultural ecology must also be considered (Odum 1971; Flannery 1971).

The underlying goal of a multidisciplinary approach is to integrate the information which can be derived from archaeological artifacts and organic remains to better understand differences and continuity in the forms of human adaptation to food spectra and local environments through time. Analytical methods used in examining 31Dh234 will focus largely on the functional aspects of artifact assemblage and sub-assemblages (i.e., definition of tool kits, interpretation of feature contents).

CAS proposes to meet the Corps' requirements for compliance with the Memorandum of Agreement by insuring that: (1) the choice of research objectives and the expenditure of project funds are based on reasonably accessible information; 2) field recovery techniques appropriate to the level of inquiry and site preservation are used at 31Dh234; (3) comprehensive documentation of investigative techniques, analytical procedures, and research synthesis is provided; and (4) data analysis incorporates both descriptive and synthetic (comparative) approaches.

2.3 Research Orientation and Hypotheses

Information gathered from the Falls Lake Project and elsewhere in the North Carolina piedmont concerning prehistoric site distributions and

inter-assemblage diversity has shown that significant "patterns" can be discerned through analysis of the spatial distribution of prehistoric components. This is particularly true for analysis of temporal and functional trends, both at the multi-site and intra-site levels (Claggett et al. 1978; Claggett and Cable 1982; Hargrove et al. n.d.).

One important finding demonstrated at Falls Lake is the geographical overlap between the distribution of Archaic and Early Woodland campsites (Claggett et al. 1978; Hargrove et al. n.d.). This pattern is reenforced by the multicomponency of many of these sites, i.e., reoccupation of Archaic campsites by Woodland populations, a trend thought to be associated with maximization of predictable, seasonal abundance of woodland food resources, such as deer, bear, nuts, berries, etc. The primary location of such campsites has been found to occur in the transitional (mesic) ecotone between bottomland and upland hardwood communities, and appears to be associated with a "diffuse" food resource economy (Claggett et al. 1978; Claggett and Cable 1982). This diversified procurement strategy, rooted in the Archaic tradition of "primary forest efficiency," (Caldwell 1958) appears to have persisted alongside a developing "focal" orientation toward (horticultural?) use of bottomland alluvial deposits later in the Woodland period (Ward 1983:73; Wilson 1977). Similar findings have been recorded in the South Carolina piedmont (House and Ballenger 1976; House and Wogamon 1978; Drucker et al. 1984).

In order to examine the variability in artifact assemblages through prehistoric time, recent research has attempted to go beyond the more traditional goals of culture history and descriptive typology, toward isolating and monitoring the "technological variables that reflect adaptational changes in cultural systems" (Claggett and Cable 1982:9). This focus involves examination of artifact morphology and definition of tool function, as well as the nature of artifact distribution across geographical space. Of course, these inquiries are based on the comparative information established by typological reconstruction and culture chronology (Coe 1964; Chapman 1975; Griffin 1978).

In addition, certain broad-based research questions can be fruitfully examined on the basis of single-site investigation. Such questions applicable to 31Dn234 might include the association of locally available food resources with shifts in lithic and/or storage technology; the effect of population mobility on tool kits; and the relationship between procurement activities and residential organization (site size). Within this framework, 31Dh234 provides an opportunity to examine a single site artifact assemblage, specifically intra-site distributional patterning, to determine probable prehistoric use of the mesic habitats which define the local environment. It is expected that study of specific tool types and/or debitage which occurs in certain areas of the site or which define 31Dh234 as a specific site type, may provide a firmer basis for predicting functional variation in site selection and use between upland and lowland piedmont environments (cf. Claggett et al. 1978).

Major hypotheses and archaeological test implications which can be derived from this cultural ecology-subsistence systems framework, as applied to 31Dn234, are as follows:

Hypothesis #1: The intensity of aboriginal occupation at 31Dn234 decreased from the Archaic to Woodland periods. This may have been in response to shifting strategies of resource procurement within the transitional and upland environmental zones.

Archaeological Test Implications: Controlled surface collection should reveal clusters of artifacts representing only a few incidents of successive site use during the Archaic period, and less during the Woodland period. If clusters are temporally and spatially discrete, this would provide more accurate chronology and functional separation of the individual components of "low-density" site occupation. In addition, the temporal association of tool kits and stratigraphy at the site, as well as the validity and temporal bracketing of "shallow" site assemblages, will be examined through chronometric analysis derived from either sealed or stratified contexts.

Hypothesis #2: The composition and distribution of local food resources is reflected by technological form rather than style.

Archaeological Test Implication: An examination can be made of the lithic assemblage (clusters vs. whole site) at 31Dn234 to determine whether similar types of usage (edge wear, tool form) occur in lithic tool kits, regardless of temporal component. Caveat concerning interpretation of edge wear on plowzone lithics should be noted.

Hypothesis #3: Local resource exploitation by the occupants of 31Dn234 was characterized by a diffuse economy.

Archaeological Test Implications: Examination of debitage type, stone tool form, and ceramic vessel form will be used to detect functional "clusters" indicative of a diversified procurement strategy. If feature preservation permits, organic food remains can also be analyzed for food value and habitat context, relative to the site's location. On an intra-site basis, both cultural factors involved in the procurement of wood (for shelters, boats, tools, and/or cooking fires), and organic remains (medicinal plants, food plants, terrestrial fauna) provide the best evidence of broad economic patterns which contributed to site selection and subsistence.

Hypothesis #4: Sites occurring within the transitional and upland zones of piedmont drainage basins reflect short-term occupation campsites oriented toward procurement and/or processing of locally available foodstuffs.

Archaeological Test Implications: Absence of storage features and shelters (postholes); absence or near-absence of storage vessels (jars); tool kits reflecting low production costs, such as "expedient" tool kits with a majority of unretouched unifaces, other unifacial flake tools, and small hammerstones; absence or near-absence of non-local lithic raw materials, along with absence of "curatable" bifaces (e.g., knives, heavily retouched projectile points).

Hypothesis #6: Shallow multicomponent sites which occur on upland landforms contain "compressed" or spurious vertical stratigraphy, with

horizontal stratigraphy a more reliable indicator of componency and intra-site occupational distribution.

Archaeological Test Implications: A variety of natural and taphonomic processes may affect the reliability of explanation and interpretation of archaeological remains at shallow or deflated sites. Substantial evidence of post-depositional processes, such as bioturbation, clearing, cultivation, erosion, and collector activity; reduced visibility of chronological separation within minimally differentiated soil zones; taphonomic processes, such as rodent and/or human activity relative to archaeological bone and artifacts (Efremov 1940).

3.0 DATA RECOVERY STRATEGY

3.1 Fieldwork Objectives

The defined site area of 31Dh234 encompasses approximately 1.25 acres of a knoll overlooking the Flat River (Fig. 1). Although previously forested, the site is now in fallow field growth and pasture, and is accessible by farm road. Site deposits have been subject to vertical mixing to approximately 15 cm below surface. CAI and ARC report widely differing subsurface integrity, with CAI indicating extensive site disturbance before the most recent clearing, and ARC indicating only moderate disturbance, presumably as a direct result of secondary forest clearing and cultivation.

Although the Woodland period site occupation appears to be largely contained within the Ao and upper A horizons (0 - 20 cm), there is a possibility that Early to Middle Archaic occupations are contained within an older, less disturbed zone (21 - 35 cm below surface). Investigative strategies will therefore seek to maximize recovery of three types of cultural patterning which this type of depositional context suggests:

a. temporally stratified occupations (vertical stratification),
b. spatially stratified activity areas (horizontal stratification),
c. intact subsurface occupational features (sealed contexts, such as hearths, storage pits, refuse pits, or postholes).

The field strategy and tactics proposed for data recovery at 31Dh234 reflect a practical, positivist approach, whose premise is that cultural remains reflect both synchronic and diachronic cultural processes. In order to characterize each occupational component and the depositional relationship of one component to another, careful provenience segregation is essential. It is believed that a set of relatively simple, streamlined techniques, and the archaeologists' close familiarity with their limits and utility, are the key to the efficiency and success of the field operation. Thus, the field plan proposed below is an outgrowth of successful and innovative techniques used on two major excavation projects and two large-scale testing and data recovery projects conducted by CAS under contract with Government agencies in the Carolinas (Drucker and Jackson 1984; Zierden et al. 1986; Drucker et al. 1984; Anthony and Drucker 1984). Major aspects of field recovery and documentation are discussed in Secs. 3.1 through 3.3 below.

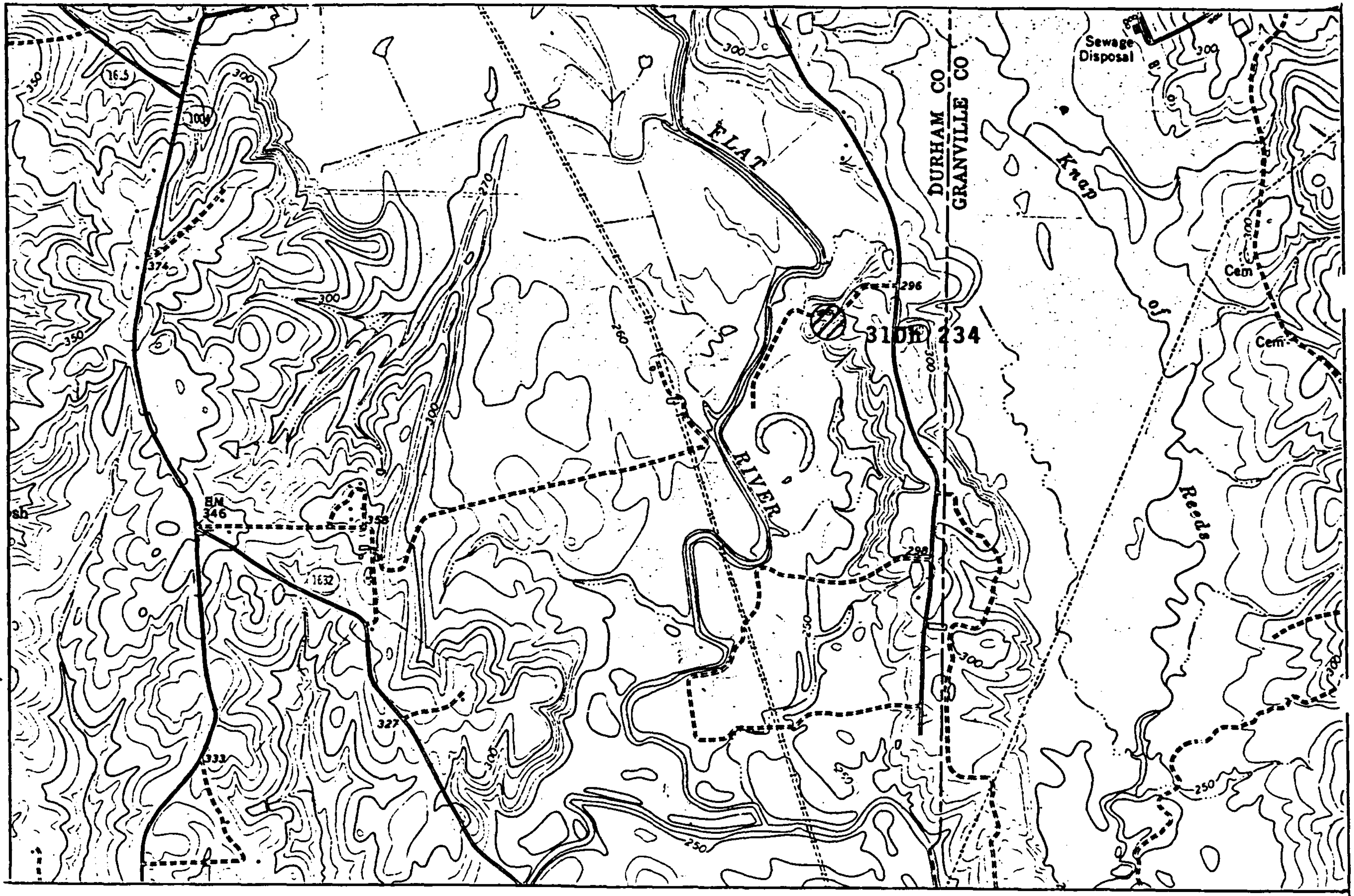


Figure 1. Project map, site 31Dh234, Falls Lake Project.

The production goals for each stage of project fieldwork are summarized in Table 1. The anticipated maximum depth of each excavation block is 40-45 cm below surface, with feature excavation potentially extending below that depth. The total volume of excavated soil therefore cannot be precisely estimated at this time, but at least 48 square meters of two-dimensional excavation are projected.

Analytical methods appropriate to the data recovery effort have been selected for their specific utility, replicability (recognizeability in the comparative literature), and relative simplicity. This reflects not only the anthropological goals of the research strategy, but also a judicious use of applicable expertise and facilities directly relevant to these goals.

TABLE 1.

Summary - Field Recovery Goals
Site 31Dh234, Falls Lake Project

A.	60% Controlled Surface Collection:	Systematic Random Sampling Strategy (120 - 5 meter collection circles after site is disced)
B.	Manual Excavation Blocks:	48 square meters Ap and A horizons (12 - 2x2 meter units, 1/4-inch mesh mechanical sifter)
C.	Graded Plowzone Transects:	40 square meters to expose subsurface features outside areas of highest artifact density
D.	Feature Excavation:	(flotation)

3.2 Task 1 - Set Up and Literature Review

Prior to initiation of field activities, principal CAS project staff members will examine the existing artifact collection from 31Dh234; review existing archaeological literature pertaining to Falls Lake, Haw River, and other major piedmont archaeological projects; and consult with Corps archaeologists for guidance concerning research priorities under the project schedule. Input concerning appropriate research concerns and comparative collections will also be sought from Stephen Claggett (NCDSA), Thomas Hargrove (ARC), Trawick Ward (UNC-Research Laboratories), and Joffre Coe (emeritus, UNC-Research Laboratories). CAS's prior familiarity with the existing Falls Lake project literature, as well as previous consultation with knowledgeable archaeologists and interested inhabitants of the Falls Lake area, is reflected by a shortened schedule for completion of Task 1 activities (see Table 4).

Initial field activities will include establishment of a field

station in Creedmoor, north of Durham. All field equipment, staff, and project materials will be housed at the field station for the duration of project fieldwork. The base of operations will include access to telephone services for consultation with the Corps, local Falls Lake project personnel, and CAS's Columbia office.

3.3 Task 2 - Controlled Surface Collection

After 31Dh234 has been disced and moistened, a site grid will be established, based on a permanent site datum (1/2-inch PVC pipe embedded in concrete). For ease in site mapping and analysis, the working grid (10x10 meter frame) will be constructed in conformity with the orientation of the knoll on which the site is located. Reference to the working grid will provide a baseline for controlled surface collection, block excavations, grading transects, feature location, and a site contour map which describes the topographic character and limits of the site, as well as the surface provenience of excavation units. A transit level and tapes will be used to set out surface collection samples and excavation units, and to record dimensions and planviews of features and living floors which may be identified in the excavation blocks. Stratigraphic and horizontal control throughout the data recovery operations will be maintained through a series of instrument readings of distance and elevation, keyed to an Assumed Elevation derived from current USGS 7.5-Minute mapping.

Second, a controlled surface collection will be conducted, using a systematic random sampling strategy (Dixon and Leach 1978). A sampling frame of 5x5 meter units will first be superimposed (on paper) over the 10x10 meter working grid. Then a North/South baseline will be established on the site's western periphery, following the long (100m) axis of the site (Fig. 2). At 10 meter intervals along the North/South baseline, four discrete collection points will be located at randomly selected distances Grid East of the baseline. Selection of distance from the baseline will follow a systematic interval of k ± r, where k = 10 and r = a single-digit, random number between 1 and 9. A transit level, compass, and metric tapes will be used to accurately place the sampling points. The sampling strategy will yield a total of 120 random sampling points, each of which will form the center of a five-meter diameter collection circle.

This constitutes a 60% sample of the available 5x5 meter sampling frame, and a 49% sample of the actual site ground surface. Each 5-meter collection circle will be laid out using the "dogleash" method, and intensively covered by a single collector. All visible artifacts within the circumference of each circle will be collected within a 5-minute period.

Justification of Sampling Fraction: Extensive use of 10% vs. 60% sampling fractions drawn from the same sampling universe at a 50-acre plowed site in Berkeley County, South Carolina revealed no significant differences in content or artifact density between the artifact samples (Zierden et al. 1986:1-6, 3-10 to 3-14). As demonstrated by SYMAP and third order trend surface analysis, the 10% sampling fraction produced the same surface signatures as did the larger sampling fraction, both at the artifact density and residual variance levels. Although this test

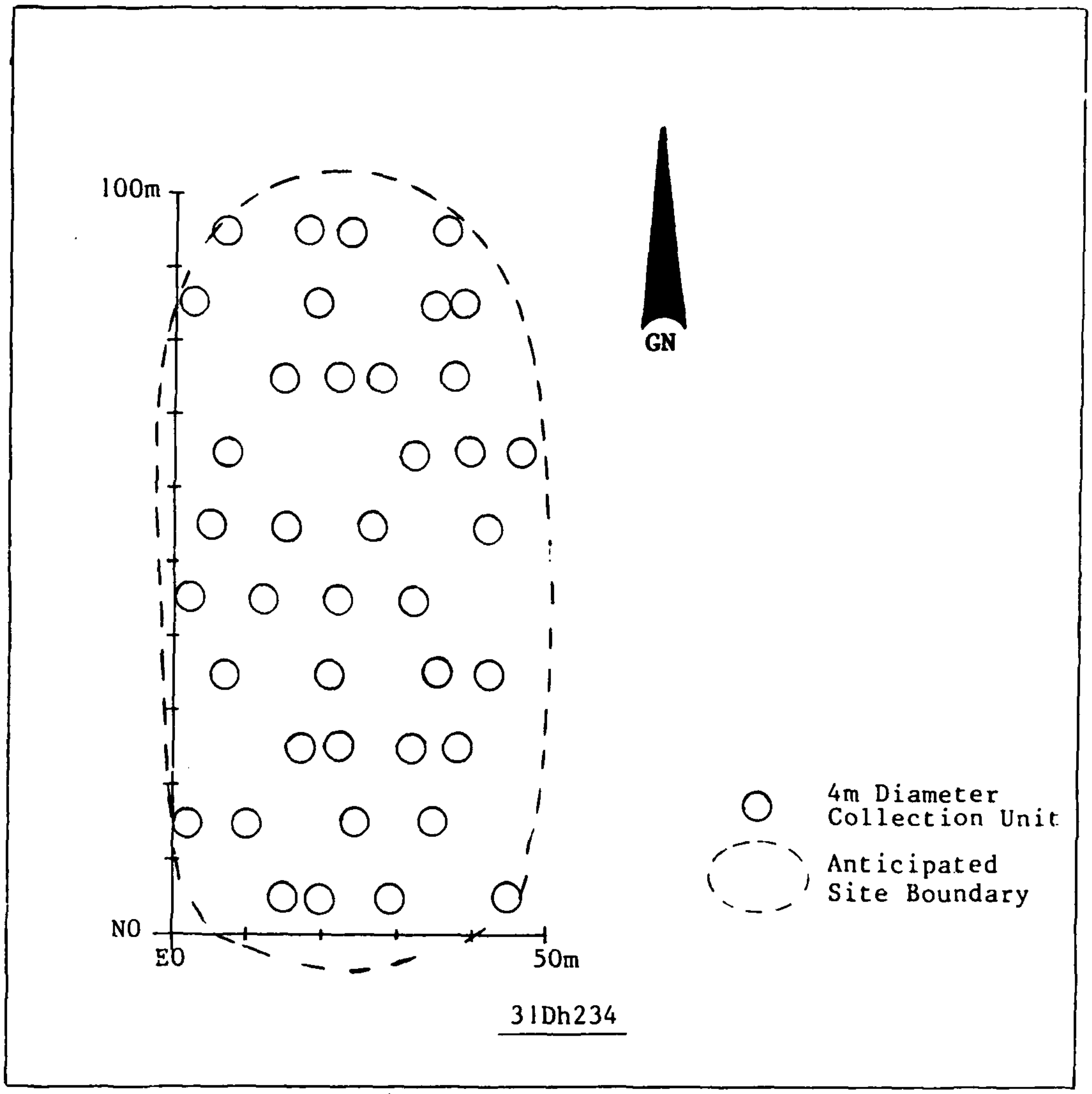


Figure 2. Schematic depiction of controlled surface collection plan, 31Dh234.

was conducted on a historic plantation site located in the coastal plain, the parameters of occupation for moderately to densely occupied prehistoric sites on relatively level landforms should not differ sufficiently from this model to negate the effectiveness of the smaller sampling fraction.

However, we feel that expansion of the surface artifact sample would be advisable at this site. This tactic will insure adequate sample size, in case artifact patterning on-site is subtle, and/or block and mechanical excavations fail to expose substantial sub-surface features. A larger sample not only provides a larger sample of artifacts for analysis and comparison, but offers finer geographic coverage of depositional contexts, which reflect the behavioral patterns of the site's former occupants. One major goal of the research design, in turn, is to determine horizontal stratigraphy (temporal patterns of occupation) and activity patterning which may further elucidate procurement practices, settlement and subsistence strategies, and the nature of technological adaptation to a multi-focal subsistence economy.

In addition to the systematically placed collection circles, a general grid surface collection will be made of all temporally diagnostic or unusual artifacts; all general collections will be provenienced and mapped according to 5x5 meter grid unit.

3.4 Task 3 - Excavations

Immediately after completion of the Task 2 fieldwork, the field crew will return to Columbia, where preliminary quantification and distributional analysis of major debitage (primary, secondary biface reduction debitage; biface thinning flakes), tool categories (unifaces, bifaces), and ceramic categories will be undertaken. On this basis, "high intensity" and "low intensity" occupation areas will be tentatively defined for subsurface exploration (Task 3). In order to more accurately detect "core" and "peripheral" occupation areas which may contain discrete activity loci and/or household units, excavation blocks will be placed so as to recover samples of artifacts and organic refuse from low artifact density site areas (mechanically assisted excavation of plowzone), as well as those site areas which reflect high artifact content (manual excavation).

The basic manual excavation unit will be 2x2 meters, with expansion of individual units to form blocks as necessary to expose features. Excavation will be terminated at the sandy clay loam base of the prehistoric occupation zone, which occurs c/a 36 cm below surface across most of the site. It is anticipated that approximately 48 square meters of site area will be exposed during the excavation phase.

The Ap (plowzone) horizon at 31Dh234 will be excavated as a single zone, both in manual and mechanically assisted excavation units; manually excavated units will be screened using 1/4-inch mesh hardware cloth. Since nested screens substantially reduce the screening inefficiency caused by prolonged sorting of heavy loads of non-diagnostic debris, a 1/2-inch insert screen may be used to quickly cull any natural ferrous and/or clay concretions which occur in abundance in the excavation zones. Artifacts and organic samples caught by the 1/2-inch screen (e.g., macrobiotic samples, large sherds) will be collected as 1/4-inch recovery for analytical purposes, since the smaller, underlying mesh constitutes the basic recovery standard.

Vertical excavation control will be maintained in 10 cm levels below the plowzone; if finer stratigraphic separation is indicated, 5 cm levels will be used to detect lenses and intrusive features, such as living floors/hearths, postholes, food processing areas, and refuse discard areas. Features and lens-like cultural deposits will be piece-plotted per level before proceeding to the next level. Blocks will be expanded to a maximum of 4x4 meters to fully reveal the extent of intact features requiring mapping, photography, and recovery. While open, excavation units will be covered by black 4-mil plastic to prevent accidental disturbance and weather erosion.

In order to recover direct evidence of paleoenvironments, subsistence resources, and aboriginal exploitation strategies, and to define the function of subsurface features, the fill from postholes, hearths, and small pits will be fine-screened using flotation procedures. Fill from larger features will be sample-floated (4-liter samples) and dry-screened using 1/8-inch mesh hardware cloth. It is hoped that paleobotanical remains can be recovered from datable feature contexts, in order to determine whether changes in the natural distribution of local food resources are discernible from the Middle Archaic to Late Woodland periods in the North Carolina piedmont. Analysis of food remains and cultural materials from datable, sealed contexts is expected to shed light on these topics.

No sheet or feature midden deposits have yet been indicated by testing of 31Dh234. Since faunal preservation is typically poor in isolated hearth and pit feature contexts at disturbed piedmont sites, zooarchaeological data from 31Dh234 is expected to be minimal. Should bone artifacts or fragments of macro-faunal bone be recovered, CAS will seek species identification and a determination of presence/absence and nature of cultural alteration from a zooarchaeological consultant (Dr. Jeanette Runquist, Birmingham Southern College, Alabama)).

Flotation of feature fill is expected to maximize the recovery of charcoal, small artifacts, and small botanical remains which may be preserved in subsoil contexts. CAS's self-enclosed, pump-driven agitation tank outfitted with seven shower heads and three screen inserts (1/4-inch for extraneous debris, 1/16-inch for heavy fraction sample, and .5mm [#35 geologic sieve] for light fraction sample) will be used to process feature fill. The flotation tank has been custom-designed to incorporate the fine screen size necessary to insure reliable results from microbiotic analysis, as well as the standard and culling screens.

Fine-screened feature fill will first be covered and air-dried in large crates, tagged with provenience information, and then agitation-floated, after which the light and heavy fractions will be bagged and hung to dry. Minimal contamination between samples is insured by regular rinsing of screens and by use of a gradient-style sluicebox and self-collecting exit pipe. CAS's flotation system is mobile, easily maintained, extremely durable under heavy and extended use, and capable of efficiently processing up to 200 liters of soil/shell per day. A freshwater source will be used in conjunction with flotation of excavated materials.

Detailed records will be generated concerning the excavation and screening activities at 31Dh234, using standard Excavation Forms (Attachment A). A daily log of provenience Field Specimen (FS) numbers will be maintained for use in assigning sequential numbers to artifact bags, biotic specimens, soil samples, and other specimens. The FS/inventory form will be checked against specimen bags at the end of each work day (Attachment A). All biotic remains, including flotation samples, will be bagged separately. Samples will be prioritized for analysis by consultants after completion of the fieldwork.

Soil samples from excavation units will be collected for descriptive analysis using Munsell color determinants and published textural guidelines. Organic samples suitable for radiocarbon dating, and ceramic samples with associated soil suitable for limited thermoluminescence dating will be collected. Organic samples may consist of charred plant/plant food remains, bone, charcoal, or charred soil. Small samples of carbonized organics, sherds, and burnt/fired soil or clay recovered from feature and stratified contexts will be carefully retrieved and packaged in discrete, waterproof containers for chronometric analysis. These materials will be collected according to guidance provided by Alpha/Beta Analytic, Inc., the chronometric dating laboratory (Dr. Murray Tamers, personal communication 1985).

All cultural features encountered during block excavations will be mapped and photographed; details will be recorded on standard Feature Forms (Attachment A) and in daily field notes. Plan and profile drawings will include feature dimensions, depth, orientation, contents, and temporal association, if assignable.

Other narrative, graphic, and inventory records of all excavations will be prepared (Attachment A). Graph paper will be used to record scaled planviews and excavation profiles. All planviews and profiles will be keyed to the Excavation Form, and all drawings will include an appropriate scale and directional indicator. Site documentation will include detailed profile drawings of two walls (north-south axis and east-west axis) within each excavated unit. These records will document the nature of depositional zones, as well as site formation processes.

Permanent records of features, excavated surfaces, and field techniques will be made using B/W photographs and color slides. All photographs will contain an appropriate scale and directional indicator. All slides and B/W photograph and negative sets will be appropriately labeled for curation according to a Photographic Log (Attachment A). B/W negatives and prints will be developed and stored according to Government archival standards.

Once the excavation and field documentation tasks have been completed, the archaeologists will mechanically backfill the excavations and return all project specimens, equipment, and personnel to Columbia. At the conclusion of the fieldwork, all field data, site record forms, graphic records, and other data will be reviewed and prioritized at the CAS laboratory in Columbia, South Carolina for processing, inventory, analysis, packaging, and preparation for permanent curation at the North Carolina Office of State Archaeology in Raleigh.

3.5 Task 4 - Laboratory Analysis and Documentation

Cleaning and initial sorting of field specimens, samples, and other field data will begin during the first week of data recovery operations. Large-scale sorting, processing, analysis, and stabilization of these materials will continue during and after completion of the field program. All artifacts recovered during data recovery will be washed and sorted. Representative samples of excavated soils will be described and analyzed according to published Munsell color notation and soil texture, and used to illustrate stratigraphic columns from the site.

Based on CAS's previous investigation of dense lithic scatter sites, a relatively large volume of prehistoric lithic and ceramic artifacts is anticipated as a result of the block excavations (approximately 10,000 items). Sherds 1/2-inch or larger and unusual (i.e., non-receptacle) ceramic artifacts smaller than 1/2-inch will be cataloged and analyzed. Residual (smaller than 1/2-inch) and eroded artifacts that are not diagnostic or otherwise identifiable as to type or form will be counted and/or weighed, and then discarded (with approval of the District) after examination in the laboratory.

If identifiable faunal bone is recovered from the site, it will be conserved using either Vynac or a Duco-acetone solution after analysis, and then wrapped in acid-free tissues and packaged with the other special samples for curation. Field specimens and/or their 4-mil polyethylene bags will be labeled in indelible ink with the site number (31Dh234), North Carolina accession number, Field Specimen (FS) number, and CAS catalog number. All field specimens and special samples will be stored in clean cardboard boxes for temporary curation at CAS.

Curatorial preparation of the specimen assemblage from 31Dh234 will include boxing in standard cardboard boxes provided by the N.C. Office of State Archaeology; each box will be clearly labeled with the site number ("31Dh234"), project name ("31Dh234, Falls Lake Data Recovery"), provenience information (per box), date, and contractor's name ("CAS"). Individual boxes will not exceed 35 pounds in weight. A copy of the CAS Accession List and computer-generated artifact catalog will be submitted to NCOSA at the time the artifact and special sample assemblage is submitted for permanent curation; as part of its curational requirements, NCOSA will also require one (1) copy of the project final study for its records. These curatorial preparation procedures comply with N. C. Office of State Archaeology standards.

Organic and/or inorganic samples from sealed or stratified contexts will be submitted to Alpha/Beta Analytic, Inc. for chronometric analysis, following non-contamination procedures outlined by that laboratory. In order to yield a reliable date -- that is, bring the standard error factor to within 100 years -- ceramic sherds (inorganic samples) will be submitted for thermoluminescence dating along with a sample of associated soil (Dr. Murray Tamers, personal communication 1986). These samples are most useful in artifact contexts where organic content is limited, such as inorganic features, sub-plowzone midden, or sandy feature contexts.

Analysis of site depositional patterns crucial to an understanding of occupational chronology and intra-site activity patterns at 31Dh234

will be sought on the basis of both stratigraphic analysis and assemblage function analysis. Artifacts will be analyzed according to form/type, material, functional class, and spatial distribution. Quantification and spatial analysis of the site's cultural content will be integrated with quantification and spatial analysis of any associated bio-archaeological data in order to present a comprehensive series of findings regarding environmental, behavioral, and technological shifts which may have occurred between the Archaic and Woodland periods of site occupation.

Prehistoric artifacts recovered by the mitigation effort will be sorted, identified, quantified, and analyzed at CAS's laboratory. The relatively large volume of artifacts anticipated from 31Dh234 must be systematically handled. Primary emphasis will be placed on the identification of ceramic and lithic specimens according to typological, temporal, and functional criteria. Bone and/or steatite artifacts from 31Dh234 have not yet been identified; if a Late Archaic component is present and well preserved, analysis of such materials may prove pertinent to an examination of Hypotheses #1, #2, and #3. All artifacts will be inventoried and indexed in MINARK, an archaeological database program developed and used extensively for large-scale manipulations (Attachment A).

Primary attributes upon which the artifact analyses will be based include:

A. Ceramic Artifacts:

1. Paste - texture, firing atmosphere, hardness
2. Thickness of vessel part
3. Temper and clastic inclusions - type, size, angular/rounded, burnt/non-burnt
4. Vessel form and size - derived largely from rim and basal reconstructions; appendages noted
5. Surface treatment - finish and decorative treatment per vessel part
6. Rim analysis - lip form, shape, finish, decoration; rim curvature, thickness, decoration, diameter
7. Evidence of special use - charring, organic residue, mending holes, abrasion marks

B. Lithic Artifacts:

1. Raw material
2. Cortical presence/absence
3. Morphological type - debitage (primary, secondary, thinning flakes; cores); tool (uniface, biface, retouched); projectile point type (culture-historical type)
4. Inferred tool function (use wear) - edges polished, smoothed, step-fractured; tool shape; edges backed, blunt, or hafted; ground or pecked tool

C. Bone Artifacts:

1. Faunal source
2. Body element modification (long bone, appendage, condyle, skull element)
3. Form/inferred function

4. Surface modification or decoration

D. Fired Clay and/or Stone: Daub; Fired cooking "stones"; Sherd or stone abraders; Stone net weights; Stone atlatl weights; Soapstone receptacles; Soapstone pipes; Clay pipes

Based on the results of other site studies in the North Carolina piedmont, it is anticipated that ceramic specimens will be classified according to broad, rather than narrow, regional and sub-regional taxonomies (cf. Claggett et al. 1978). The typological approach will emphasize broad similarities in major criteria, with significant variation noted at a sub-taxonomic level. Thus, interpretive problems caused by such things as a) typological overlap for textile impressed series (coastal vs. inland sand and grit tempered Early to Middle Woodland types), b) morphological similarities between textile impressed and paddle stamped series (Deptford and Deep Creek-Yadkin types), and c) duplication among geographically defined Early and Middle Woodland sand and/or grit tempered types (Badin, Yadkin, Deep Creek, Mount Pleasant, New River, and Deptford types) will be minimized by reliance on well documented ceramic collections (South 1976; Phelps 1982, 1983; Loftfield 1976; Drucker 1983; Blanton et al. 1986).

Selection of paste texture for certain vessel forms may be related to the intended use of the vessels in this region, either in an everyday functional setting (cooking vs. water-carrying vs. receptacle) or a social setting (trade wares or ritual wares vs. everyday wares). Possible functional differences between major ceramic types at 31Dh234 will be sought through analysis of rimsherds and body sherds which are diagnostic of vessel form. The cultural activity context (e.g., hearth vs. food processing area vs. food refuse area) associated with vessel form will also be examined to infer behavioral correlates for the observed ceramic variability.

All diagnostic and measurable rimsherds from the Late Archaic - Early Woodland components of the site will be assigned a reconstructed vessel form. Associational statistics and regression analysis will be used to measure variability in vessel form if rimsherds of sufficient size are identified from horizontally and/or vertically stratified contexts. Analytical methods will consist of establishing vessel form from rimsherds of the Badin/Vincent, Yadkin, and possibly Gaston and Hillsboro/Caraway series, since these types are likely to produce the largest and most reliable samples for probabilistic inference (Claggett et al. 1978; Hargrove et al. n.d.).

Artifact class and attribute listings will be cross-tabulated using a computer-coded Data Entry Card to produce descriptive statistical listings and tabular comparisons (e.g., mean, median, and modal distribution values; chi-square, Spearman's rho analyses)(Attachment A). Computer-generated point-density maps of the distribution of defined data classes, based on a correlation matrix, will be produced for the following major groupings using data from 31Dh234: Ceramics (by type), Ceramic Vessel Form, Ceramic Temper, Lithic Tool Type, Lithic Debitage Type, Fired Clay Artifacts, and Fire-Cracked Rock. Other associational

measures and cluster analyses, including OSIRIS dendrograms, may be generated for combined artifact and bio-archaeological data. These SAS (Statistical Analysis System) package programs will be run on the University of South Carolina mainframe computer, with the assistance of the Social and Behavioral Sciences Lab staff. CAS is a certified user of these facilities.

Standard sources for prehistoric artifact identification and interpretation will be consulted in meeting analytical goals, including, but not limited to Coe n.d., 1952, 1964; Semenov 1964; Phelps 1982, 1983; South 1976; Evans 1955; Miller 1962; Keel and Coe 1970; Ward and Coe 1976; Coe and Lewis 1952; Barnette 1978; Newkirk 1978; Shepard 1956; Claggett and Cable 1982; Oliver 1980; Keel 1976; Wilson 1983; Reid 1967; Anderson 1983; Drucker 1983).

Examination of local paleoenvironments, procurement technology, and subsistence orientation will be conducted through an attempt to identify the type, habitat context, relative accessibility (vis-a-vis site location), and food value of organic remains which can be at least tentatively identified as food resources. Sufficient preservation allowing, such examinations would provide some preliminary indications -- independent of the artifact assemblage -- of whether the procurement strategies, and uses of food plants and/or medicinal plants from one or more components of 31Dh234 reflect a focal or diffuse subsistence orientation (cf. Binford 1980). This type of information is almost nonexistent for early aboriginal piedmont sites.

While there is no standard minimum number of botanical individuals necessary for reconstructive analysis (Paul Gardner, personal communication 1984), a substantial volume of botanical specimens is usually needed in order to develop a representative body of information on food remains and non-food species (Drucker and Jackson 1984). Based on the low number of individual specimens recovered from most "lithic-ceramic scatter" sites, particularly in preservation-poor contexts like eroded piedmont soils, botanical collection may prove to be of limited statistical value, but can suggest trends and associations for further examination at better preserved piedmont sites.

The results of paleobotanical analysis will be examined to determine whether stratigraphic changes can be detected in the function of storage or refuse features, and whether hypotheses concerning subsistence orientation can be meaningfully substantiated or refuted. Selected heavy fraction samples and diagnostic macrobiotic specimens from feature contexts will also be submitted for analysis if preservation is good enough to allow further examination of paleoenvironmental habitats and detection of cultural adaptation to local changes in food supply.

The objectives of paleobotanical analysis will include:

-- identify botanical species by provenience, including potential food value or medicinal value,
-- prepare comparison of intra-site proveniences on the basis of paleobotanical content, if appropriate,
-- identify and quantify plant food remains by provenience, if appropriate,

-- prepare comparative statements about the site's paleobotanical assemblage in relation to other known prehistoric assemblages, and to the modern environment, and

-- prepare synthetic statements regarding possible procurement strategies and technology, dietary patterns, and taphonomic processes which may be associated with the site's physical history.

The analytical results of the botanical study (plant remains and plant food remains) will be discussed and thoroughly integrated by the Principal Investigator in the 31Dn234 data recovery report. In order to provide for more detailed study by other researchers, Dr. Gardner's technical report will be appended to the data recovery report as a lettered appendix.

3.6 Task 5 - Report Preparation and Administrative Documentation

Throughout the contract period, monthly progress reports will be submitted to the COAR by the seventh day of each month. These progress reports will cover work accomplished, percentage of work completed and remaining for each major work item, rate of progress relative to work schedule, and documentation of noteworthy developments. Verbal weekly progress reports will be made on Mondays to the COAR. Unforeseen problems and developments not covered in the mitigation plan or contract will be immediately brought to the attention of the COAR for consultation and resolution.

The draft and final studies documenting mitigation of 31Dn234 will follow all format and content specifications outlined in the Scope of Work, Sec. 7(c) and more fully specified by Department of the Interior Guidelines. The final study will incorporate all negotiated revisions of the draft study as required under contract with the Corps.

The final study will be prepared by qualified professional CAS archaeologists, and will bear appropriate sponsorship, authorship, and service inscriptions. It will include appropriate introductory tables and acknowledgments; popular and technical abstracts; narrative and graphic summaries (including maps, B/W photographs, and line drawings as specified) of field methods and mitigation objectives, along with an evaluation of their contributions and/or limitations; a narrative and graphic synthesis of the results of the research and artifact analyses; comparative and synthetic research discussion; references cited; and appropriate appendices containing textual support documentation. All maps, plans and profiles appearing in the final study will be professionally drafted.

4.0 SCHEDULE

Table 2 presents a proposed production schedule for contract activities associated with data recovery at 31Dn234. Tasks presented in this table correspond to numbered tasks appearing in Secs. 3.2 through 3.6. The following narrative briefly presents the substance of this production schedule. Although the general sequence is assumed, details of the schedule are negotiable as desired by the Government.

TABLE 2

Preliminary Task Completion Schedule
Archaeological Data Recovery at Site 31Dn234, Falls Lake Project

Week No.	Task/DELIVERABLES
W/in 3 days after NTP	FINAL WORK SCHEDULE (1 copy)
1	Task 1; Arrange discing of site
2-3	Task 2; Preliminary Task 4; Spatial and temporal analysis of surface artifact distributions; Transport of excavation equipment to field station
4	PROGRESS REPORT #1 INVOICE #1
4-8	Task 3; Continue Task 4 [includes 1 week for Christmas/New Years break]
8	PROGRESS REPORT #2 INVOICE #2
9-22	Complete Task 4; Construct site/operations map; Complete Task 5; Generate MINARK artifact catalogs
12	PROGRESS REPORT #3 INVOICE #3
16	PROGRESS REPORT #4 INVOICE #4
20	PROGRESS REPORT #5 INVOICE #5
22	DRAFT FINAL STUDY (10 copies)
W/in 60 days after receipt of comments on Draft Study:	FINAL STUDY (25 bound copies + camera-ready copy)
W/in 60 days after date of acceptance of Final Study:	INVOICE #6 ARTIFACT COLLECTION (NC-OFFICE OF STATE ARCHAEOLOGY) ARTIFACT CATALOG SHEETS (NCOSA) FIELD RECORDS (NCOSA) COPY OF FINAL STUDY (NCOSA)

Within three days after receiving official notice of the contract period and notification to proceed, CAS will submit to the Contracting Officer's Authorized Representative (COAR) a final version of Table 2 (Task Completion Schedule); this will indicate specific completion dates for each major item of work covered by the contract.

After the designated site area has been disced and moistened by rainfall, the field crew will lay out a grid on-site and proceed with the controlled surface collection (2 days). Analysis of artifact clusters and low-density patterning across the site surface (5 days) will guide the placement of excavation blocks during Phase 2 of the data recovery program.

Manual and mechanically assisted excavation blocks will be opened within the next 40-hour week. (Task 3) by the field crew, under the supervision of the Project Archaeologist. All features exposed by excavation blocks will be flagged, mapped, and recorded in planview. Feature excavation and site backfilling will comprise the remaining two of the field program. Flotation of feature fill will be conducted during this time. Drying and sorting of the "clean" flotation samples will be done by the laboratory staff in Columbia after the fieldwork has been completed. The Corps will be notified of fieldwork completion at this time, and all of the contractor's equipment and materials will be removed from the premises.

Preliminary sorting, processing, and analysis of artifacts and bio-archaeological samples (Task 4) will begin during the Task 2 period and continue concurrently with Task 3 and beyond. Task 4 analysis will be completed during the Task 5 (report preparation) period as a logical part of that phase of work. Botanical and chronometric samples will be submitted to the appropriate consultants for analysis within one month after completion of the fieldwork, in order to allow sufficient time for synthesis of the results into the draft final study for the project.

Ten (10) copies of a draft report will be submitted to the Corps within the schedule indicated by the Scope of Work (allowing one extra week for end-of-year holiday breaks). CAS will provide 25 printed and bound copies of the final study, plus a camera-ready original, to the Corps within 60 days after receipt of draft approval. Deadlines set by contract for the completion of fieldwork, progress reports, and mitigation study draft(s) will be promptly met.

5.0 COMPANY RESOURCES AND EXPERIENCE

5.1 Management and Administrative Capabilities (see Attachment B)

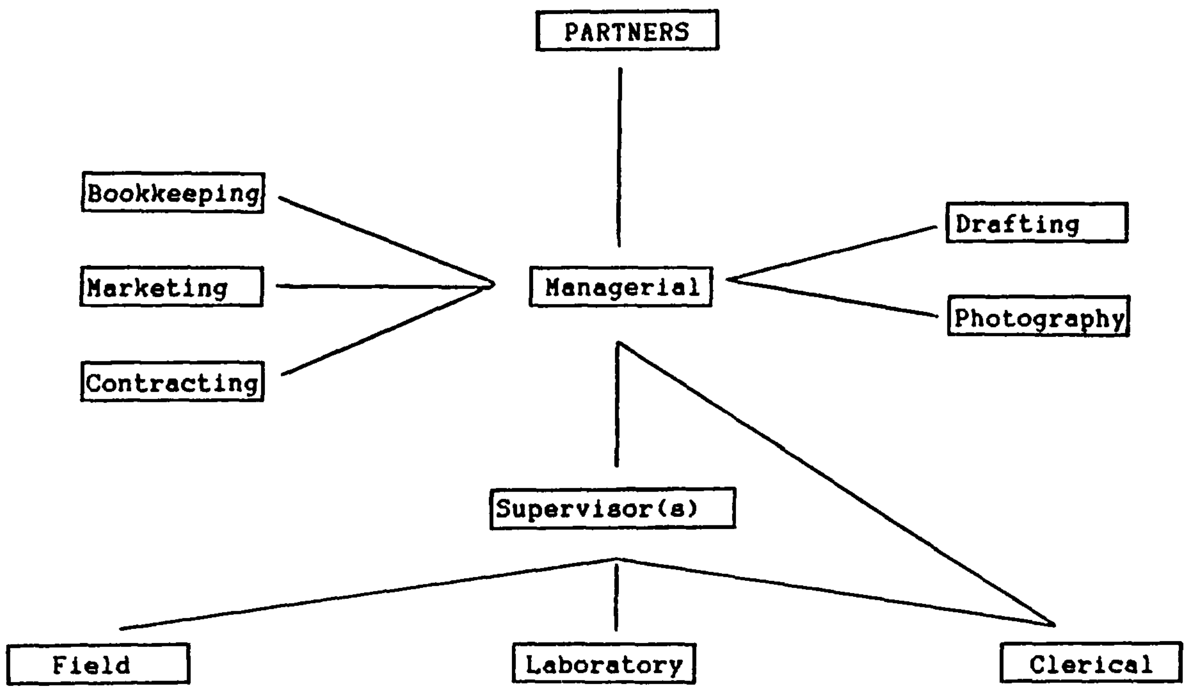
Carolina Archaeological Services is the oldest private company in the Carolinas which devotes itself exclusively to archaeological and historical research. In its eleventh year of applied environmental studies, CAS is based in Columbia, South Carolina, and regularly serves clients located in piedmont communities of the Carolinas and Georgia.

CAS's staff, consultants, and material resources meet all federal, state, professional, and commercial guidelines for providing expert services in cultural resource studies (Table 3). The company is a

TABLE 3

CAROLINA ARCHAEOLOGICAL SERVICES
Management Flow Chart

NOTE: This information is confidential. Its release is subject specifically to authorization by Carolina Archaeological Services.



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certified Department of Defense contractor, and is listed in the national Guide to Contractors in Cultural Resource Management (Lees and Kimery-Lees 1984; Lees 1985). A certified Woman-Owned Small Business Enterprise, CAS is also listed in the Engineering/Architectural Directory to Minority and Women Owned Firms (American Consulting Engineers Council 1986). The company is currently rated by Dun & Bradstreet as having a clear financial history, secured financing, and overall good condition (DUNS No. 09-499-4167).

Key management and administrative assets which CAS offers the Corps for data recovery at 31Dh234 are: (1) staff archaeologists and consultants with specific expertise in successfully conducting limited data recovery at comparable prehistoric sites in the Carolina piedmont, (2) prior survey and testing experience in the Falls Lake project area, (3) prior experience and familiarity with Corps and State of North Carolina priorities and production schedules for the Falls Lake project, and (4) satisfactory completion of a number of contract studies for the Wilmington District, Corps of Engineers during the past year. CAS has an excellent working relationship with N. C. Wildlife Commission personnel at Falls Lake, as well as with the state review staff of the State Historic Preservation Office.

Secondary skills which will be applied to the 31Dh234 data recovery project as needed include: (a) several years of experience in conducting large-scale archaeological excavation and flotation projects using heavy equipment and manual excavation methods, (b) successful coordination and integration of multidisciplinary cultural research studies, (c) flexibility in accomodating new and/or alternative logistical procedures and analytical techniques as necessary, and (d) accountability for management of the project's fiscal and scheduling requirements.

Standard company operation encompasses a variety of services, such as archaeological mitigation studies, cultural inventory surveys, site testing, historical research, environmental impact surveys, artifact and organic specimen conservation, exhibit design, map construction, technical drafting, graphics production, technical composition and editing, and manuscript production. In-house expertise also includes business management, journalism, teaching, and computer-assisted data management and statistical analysis.

An important aspect of CAS's resource base is maintained through research exchange, working relationships, and regular consultation on major projects with colleagues throughout the Atlantic region. Major ties through use of computerized databases and personnel contacts are maintained with research institutions in the southeastern United States, including the University of North Carolina, East Carolina University, Appalachian State University, N. C. Department of Cultural Resources, S. C. Institute of Archaeology and Anthropology, University of South Carolina, S. C. Department of Archives/History, Charleston Museum, University of Georgia, University of Tennessee, and Virginia Historic Landmarks Commission.

In keeping with its primary services to planners, resource managers, and developers -- which involve technical assistance to insure regulatory compliance in the treatment of significant archaeological and historic

sites -- CAS studies incorporate all relevant considerations of the National Historic Preservation Act as amended (P.L. 89-665, 96-515), the Archeological and Historic Preservation Act (P.L. 93-291), the Archeological Resources Protection Act (P.L. 96-95), and the American Indian Religious Freedom Act (P.L. 95-341). The company's studies are prepared in accordance with Department of the Interior regulations and guidelines (36 CFR 63; 36 CFR 66; Federal Register 48, No. 90; King 1980).

5.2 Material Resources

Over 2,000 square feet of offices, processing laboratory, and data/specimen storage areas comprise CAS's operations. These operations include special facilities which are critical to completion of project tasks, such as a flotation lab for recovery and sorting microbiotic samples; a faunal bone conservation lab; and an artifact conservation lab (stabilization and electrolysis). The company also has access to darkroom facilities, commercial print shops, graphics designers, scientific illustrators, and drafting specialists, and can obtain any specialty services necessary for presentation of professional graphics and documents.

For the field component of the 31Dh234 mitigation study, CAS currently maintains or has access to all field equipment, vehicles, and laboratory operations necessary to conduct the proposed mitigation plan in a highly efficient and timely manner. Available equipment and resources anticipated for the work covered by this Proposal include:

-- reference library containing maps, articles, books, monographs, manuals, unpublished data, comparative geological and archaeological collections
-- metal and faunal conservation laboratories
-- field vehicles
-- excavation tools
-- survey/mapping equipment
-- mechanical and manual sifters
-- nested screens in graduated mesh sizes
-- self-contained field flotation system for microbiotic recovery
-- 35mm single lens reflex cameras
-- 3.5- to 10-hp water pumps
-- portable well point system
-- microcomputer-hard drive system capable of CPM, TPM, and MS/DOS operation
-- MINARK and dBASE II software for production of data sets, management catalogs, and reports
-- WORDSTAR software for production of document text
-- letter-quality printer
-- memory typewriters
-- mechanical drafting equipment
-- photocopier
-- document assembly unit.

5.3 Staff Qualifications and Experience

According to federal standards of qualification for conducting data recovery at 31Dh234, project field, research, analysis, and site

documentation must be conducted by specialists who can demonstrate advanced degrees and experience in their respective fields (36 CFR 66; King 1980; 48 FR 44716). Based on the quality of its principals' work, CAS has been informally commended by at least one State Historic Preservation Office (South Carolina) for technical excellence in preparing cultural resource management studies, and is recognized on a regional basis for the high quality and continuity of its archaeological services.

Company principals have nationally recognized expertise in (a) prehistoric archaeology (particularly coastal Late Archaic and Woodland midden sites), with special emphasis on Archaic and Woodland settlement and procurement systems, lithic technologies, ceramics, and the study of intra-site spatial variability, (b) historical archaeology, particularly plantation/farmstead research, cottage industries research, rural industries research, and historic material culture, and (c) coordination and synthesis of multi-disciplinary cultural resource studies (e.g., Drucker and Anthony 1979; Drucker and Jackson 1984; Zierden et al. 1986).

Over a four-month period during 1983, CAS conducted testing and block unit excavations at a number of piedmont lithic scatter and rock pile sites within the Little River-Buffalo Creek drainage basin in South Carolina. This work, undertaken for the Savannah District, Corps of Engineers, included analysis of inter- and intra-site spatial variability, site formation and erosional processes on upland piedmont landforms, and temporal diversity/continuity reflected by artifact assemblages at shallow (plowzone) sites (Drucker et al. 1984). Temporal components included in this study ranged from Paleoindian to Late Woodland periods.

Prior archaeological data recovery projects (excavation and mapping) conducted by CAS include investigations in Hertford, Currituck, and Onslow Counties, North Carolina; Oconee, McCormick, Laurens, Greenville, Abbeville, Aiken, Fairfield, Lexington, Jasper, Berkeley, and Charleston Counties, South Carolina; and Columbia, Fannin, and McIntosh Counties, Georgia. (For project title list, see Attachment B).

5.4 Project Principals and Key Resource Staff (see Attachment B)

Principal Investigator/Project Archaeologist - The Principal Investigator and Project Archaeologist for the proposed study will be Dr. Lesley M. Drucker, Senior Archaeologist and partner with CAS. As principal investigator and principal author of over 70 archaeological testing and data recovery studies, Dr. Drucker's experience with piedmont "lithic scatter" sites spans both Carolinas and Georgia. In conjunction with the 31Dn234 study, she is responsible for generating the basic project research design and will coordinate the logistical program/schedule of fieldwork at the site, as well as integrate any consultant or specialty analytical studies associated with site analysis (e.g., faunal, paleobotanical, and/or radiocarbon data).

Dr. Drucker's contributions and competence relative to the Falls Lake study area are based on direct, first-hand tactical knowledge of the region and its component sites, along with an understanding of Corps

management concerns based on extended consultation and work coordination.

Under the present Proposal, Dr. Drucker will expend approximately 50% of her project allocation in direct supervision of the data recovery effort (Table 4); her remaining time will be devoted to administrative, planning, and review tasks. Her project responsibilities include:

-- generate, evaluate, and modify (as necessary) the project research design,
-- plan and coordinate field logistics,
-- monitor project fieldwork,
-- review documentation of excavations and field activities,
-- analyze lithic and bone artifacts,
-- supervise and assist in ceramic analysis,
-- synthesize archaeological analysis relative to prior research in Falls Lake study area and entire piedmont region,
-- coordinate and synthesize consultant contributions to archaeological analysis,
-- prepare monthly progress reports,
-- provide principal authorship of the mitigation study, and
-- maintain project administrative and financial records.

Dr. Drucker holds a Ph.D. from Tulane University, and has conducted and directed archaeological research and compliance studies for over 10 years within the southeastern United States, with emphasis on the Carolinas and Georgia. Her background includes 12 years of archaeological research and field investigations, historical research, academic teaching, cultural resources evaluation, cultural resources management consultation and planning, and business management.

Dr. Drucker has successfully directed excavation and analysis of large, stratified sites in South Carolina and North Carolina, including excavation and analysis of Middle to Late Archaic and Early to Late Woodland sites in the fall line and piedmont zones of the Carolinas and Georgia. Her research interests include settlement patterns, resource procurement strategies, prehistoric technology, prehistoric mortuary patterns, historic technology, and site function models. A member of the Society of Professional Archaeologists since 1978, Dr. Drucker is certified in fieldwork, theory/research, documents research, and historical archaeology. She is an associate member of the North Carolina Archaeological Council, and a member of the Council of South Carolina Professional Archaeologists, which she has served as president, vice-president, board member, and editor.

Project Archaeologist - The Project Archaeologist's major activities will be daily supervision of controlled surface collection, heavy equipment and manual excavation, mapping activities, and site documentation on-site, as well as analysis of ceramic artifacts and co-authorship of the mitigation study. Ronald W. Anthony, archaeologist and partner with CAS, will conduct these activities. His previously successful completion of comparable duties as CAS crew chief on numerous prehistoric and historic site mitigation projects in the Carolinas demonstrates his thorough familiarity with the logistical procedures and supervisory skills necessary to insure timely completion of field tasks.

TABLE 4

Summary - Labor Allocations
Archaeological Data Recovery, 31Dh234, Falls Lake Project

TASK	PERSONNEL	WORK DAYS	PERSON DAYS
Task 1 - Setup and Literature Review	Principal Investigator	3	
	Project Archaeologist	3	6.0
Task 2 - Controlled Surface Collection	Project Archaeologist	7	
	Field Technicians x 4	2	
	Lab Technician x 2	5	25.0
Task 3 - Excavation, Mapping, Backfill	Principal Investigator	3	
	Project Archaeologist	16	
	Lab Sup./Project Coord.	2	
	Field Technician x 4	13	73.0
Task 4 - Laboratory Processing, Analysis, Map Construction	Principal Investigator	6	
	Project Archaeologist	55	
	Lab Sup./Project Coord.	88	
	Lab Technician x 2	55	259.0
Task 5 - Report Preparation, Administrative Documentation	Principal Investigator	15	
	Project Archaeologist	15	
	Lab Sup./Project Coord.	10	
	Paleobotanist	2.5	
	Zooarchaeologist	2.5	45.0

Summary:

Archaeological Labor - 403 person days (100%)
- Principal Investigator - 27 days
- Project Archaeologist - 96 days
- Lab Sup./Proj. Coord. - 100 days
- Field/Lab Technicians - 180 days

Consultant Labor - 5 person days (100%)

Mr. Anthony is certified in archaeological fieldwork by the Society of Professional Archaeologists, and is a member of the Council of South Carolina Professional Archaeologists. He has completed all degree requirements for the Master of Arts degree in the Public Service Archaeology program at the University of South Carolina (M.A. expected March 1988). He has directed contract research in the Carolinas and Georgia as a company principal since 1977, and has over 15 years background in directing survey, testing, and data recovery projects at prehistoric and historic sites in the southeastern United States. During that time, Mr. Anthony has authored or co-authored over 50 CAS research reports, including studies of coastal shell midden sites and piedmont lithic scatters. His research interests include prehistoric ceramic analysis; the study and interpretation of aboriginal, European, and Afro-American mortuary features; Afro-American settlements; plantation and farmstead archaeology; and Colono ware ceramics.

As Project Archaeologist, Mr. Anthony will be on-site 100% of the scheduled field time, and will devote approximately 85% of his labor allocation in direct supervision of project activities. Coordination and continuity between the Principal Investigator and Project Archaeologist will be assured through on-site monitoring conferences and frequent telephone consultation.

Mr. Anthony's project responsibilities (Table 4) include:

-- supervise a field crew of four technicians,
-- set out site grid and systematic surface collection units,
-- guide heavy equipment in limited plowzone stripping activities,
-- excavate and screen data recovery blocks,
-- produce complete, accurate, and consistent field records and map readings,
-- maintain inventory of excavated specimens,
-- maintain photographic, plan, and profile records of excavations,
-- analyze and quantify the excavated ceramic assemblage,
-- revise the archaeological site map as necessary, and
-- co-author the mitigation study.

Laboratory Supervisor and Project Coordinator - As Laboratory Supervisor, Susan H. Jackson will oversee CAS's laboratory operations for the 31Dn234 mitigation study. In this capacity, she will conduct flotation of excavated materials on-site, supervise specimen sorting and handling by laboratory technicians, and supervise the accurate completion of site and specimen documentation in the laboratory (Table 4). Her skills in archaeology include fieldwork, mapping, and stratigraphic interpretation; sorting and conservation of microbiotic samples and chemically unstable artifacts; and ceramic and lithic analysis. She also has prior familiarity with CAS's water flotation procedures.

Ms. Jackson's field responsibilities are to supervise the preparation and flotation of excavated feature fill, and to maintain flotation provenience and inventory records. Her laboratory responsibilities include:

-- supervise drying and sorting of light fraction flotation samples,
-- package and inventory all flotation samples, macrobiotic

samples, chronometric samples, and associated documentation for specialty analysis,

-- catalog artifacts, soil samples, and other field specimens,
-- prepare a summary of laboratory methods covering microbiotic recovery and processing techniques for the mitigation study.

As Project Coordinator, Ms. Jackson will also conduct editorial review of project manuscripts, preparation and production of report graphics, report production, and coordination of the curatorial transfer of artifacts and documents. Her administrative responsibilities include:

-- coordinate transport of project equipment and field specimens to and from site,
-- assist in artifact analysis and processing of special samples,
-- supervise specimen labeling, cataloging, and packaging for curation,
-- tabulate specimen catalogs and quantification for data management program,
-- tabulate ceramic quantifications for pattern analysis,
-- edit project manuscripts and documents, including consultant reports,
-- prepare and produce graphics for the mitigation study,
-- oversee production of the mitigation study,
-- prepare accurate and consistent artifact records for transmittal to the curating institution,
-- coordinate transfer of site artifacts and documents from CAS to the curatorial facility.

Ms. Jackson is a member of the Council of South Carolina Professional Archaeologists. Her background in archaeology and technical editing includes nearly 12 years of archaeological fieldwork, laboratory analysis, crew supervision, historical research, technical writing, feature composition, and journalism in the southeastern and southwestern United States. Within the past three years, Ms. Jackson has coordinated and supervised the management of archaeological data records and archaeological reports for CAS, including a three-year major mitigation project on the South Carolina coast. She has also coordinated and produced CAS publications and educational brochures for public and agency use.

Technical Resources - Major technical support services for the 31Dn234 study will consist of photographic halftone negatives and prints, line drafting, graphic design of a report cover, and printing. CAS has received high-quality graphic products and reliable printing services from regular suppliers in the Columbia metropolitan area, and proposes to obtain comparable technical services for the 31Dn234 mitigation study.

5.5 Consultants

Specialty analysis and expertise will be sought as necessary from consultants in bio-archaeology and chronometric analysis. These consultants can demonstrate expertise and prior experience in their respective fields, and will provide services to be synthesized and incorporated into the mitigation study by the Principal Investigator. The proposed consultants have previously been associated with CAS research studies on a contract basis (Attachment B).

A. Dr. PAUL GARDNER, paleobotanist (UNC-Chapel Hill), will conduct analysis of plant remains and plant food remains from 31Dn234. He has worked extensively with Richard Yarnell, the foremost paleobotanist in the eastern United States, and has previously conducted independent analysis of botanical samples from Late Archaic and Woodland sites in South Carolina and North Carolina. Dr. Gardner's analysis of botanical remains from 31Dn234 will be based on his knowledge of aboriginal plant use patterns in the southeastern Atlantic region, and access to an extensive comparative collection at the UNC-Chapel Hill. The major results of his analysis will be integrated into the body of the archaeological mitigation study; a copy of his technical findings and tabulations will be appended to the study.

B. Charcoal, charred botanical remains, and/or sherd samples recovered from sealed contexts at 31Dh234 will be submitted for chronometric analysis to ALPHA/BETA ANALYTIC, INC. of Coral Gables, Florida. Analyses anticipated may include radiocarbon (organic samples) or thermoluminescence (fired clay).

6.0 MISCELLANEOUS TERMS

6.1 Publicity

During the contract period, neither CAS nor its agents will release or publish information concerning the data recovery investigations at 31Dh234 without specific written authorization from the Contracting Officer's Authorized Representative.

6.2 Insurance Coverage and Safety Program

CAS maintains statutory coverage of its workers under South Carolina workman's compensation laws. The company also has in force at all times comprehensive general liability coverage totalling $1 million for combined single limit bodily injury, property damage, and personal injury (copy of certificate - Appendix A).

CAS also maintains liability and collision coverage on its field vehicles and drivers. Additional coverage required by this contract for equipment and/or vehicles will be obtained prior to initiation of the fieldwork.

A standard Safety Program will be followed throughout the project (Appendix B). Specific instructions will be given to motorized equipment operators to insure safety procedures.

6.3 Rights of Entry

CAS will obtain right of entry to 31Dn234 from the Corps of Engineers and the N. C. Wildlife Commission. Precautions will be taken on-site to cut back only that vegetation which is necessary to allow excavation and mapping to proceed expeditiously. Project personnel will insure that damage to the property as a result of data recovery is minimal, and that all excavation units will be backfilled properly. No litter or debris will be left on the site surface.

6.4 Government Rights

All Government rights stated by Sec. C-8 through C-12 of the Scope of Work, as well as notifications supplied by SOW Attachment 3 and Secs. H, L, and M are hereby acknowledged by the contractor. A completed set of SOW Sec. K certifications is attached to this Proposal, as required by the Government.

6.5 Validity of Results

The research and assessment services to be provided by CAS will comply with federal regulations and implementing guidelines for the conduct of historic preservation planning studies (36 CFR 66; 48 FR 44716). The mitigation results and research synthesis undertaken by CAS will be presented in a clearly worded, illustrated study, which may be used by the Corps to satisfy its documentation requirements under the Archeological and Historic Preservation Act. CAS's study may also be used in the future by the Corps as a reference for planning similar types of mitigation projects at endangered archaeological sites within the jurisdiction of the Wilmington District.

As Principal Investigator for the data recovery project, Dr. Lesley M. Drucker will be responsible for the validity of the findings presented in the final study. In the event of controversy, Dr. Drucker will be available to testify as to the validity of these findings.

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